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NOV 1986
Vol. 3 No. 7

GUIDE

TO COMPUTER LIVING

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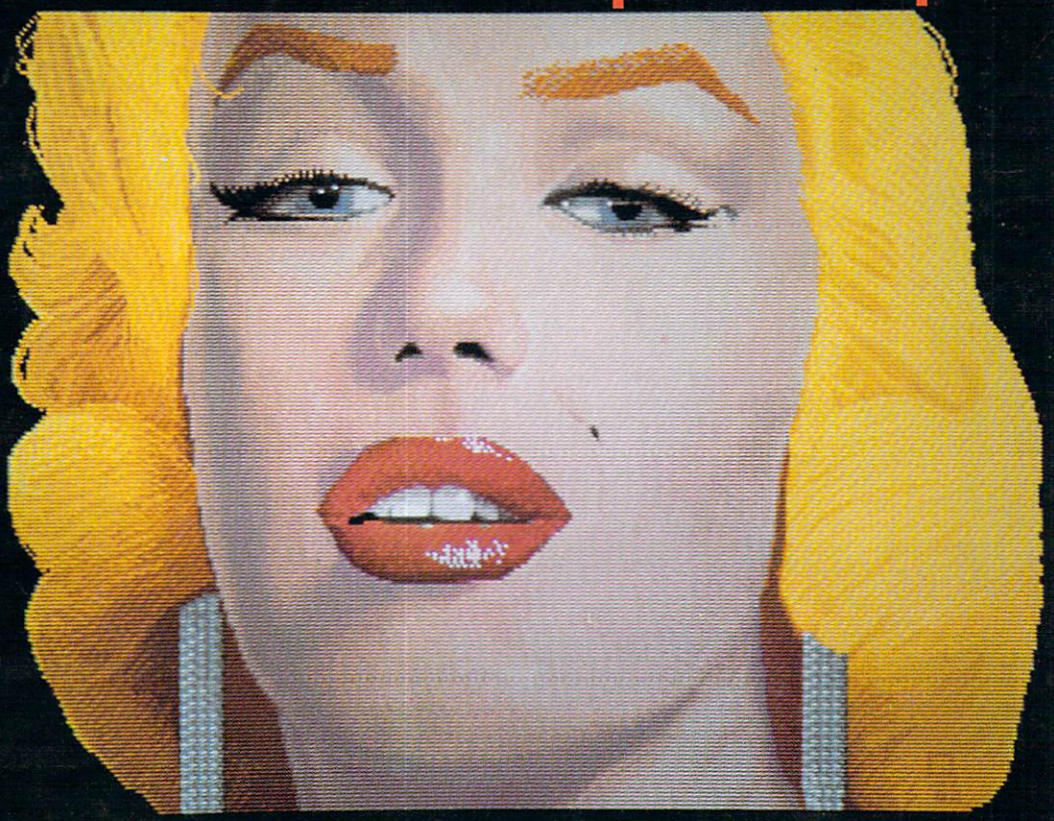

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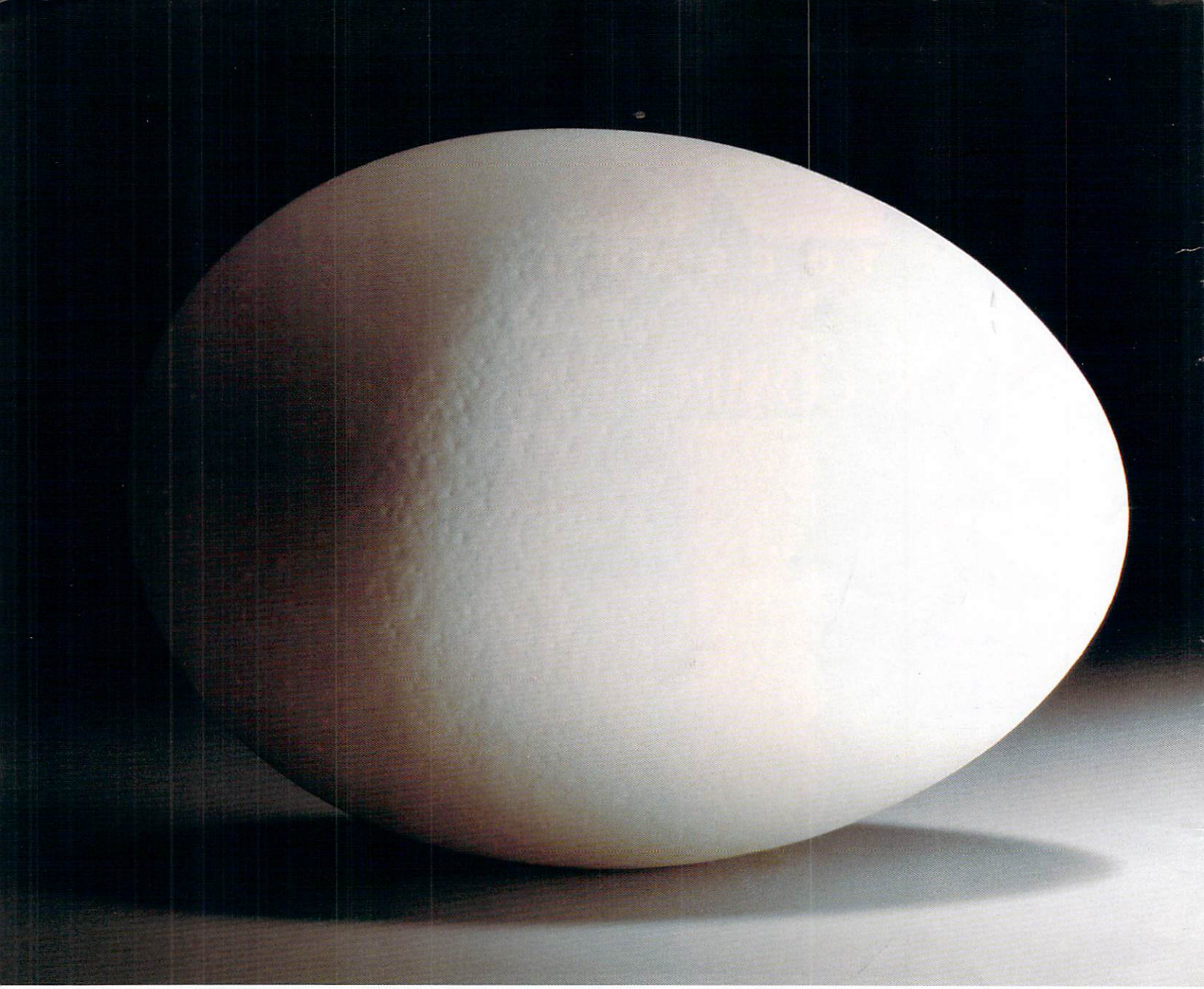

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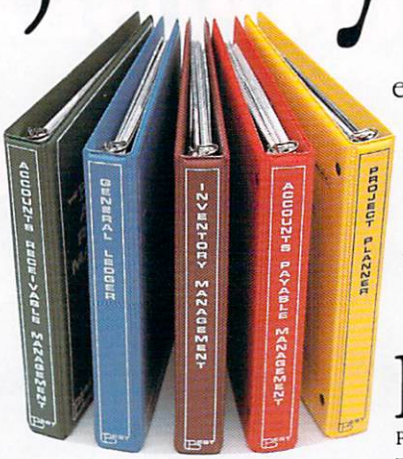

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ROBERTS' RULES OF INALIENABLE COMPUTER ORDER

1. You will never have an extra blank disk.
2. If you do bring along a blank disk, you won't need it.
3. If you don't bring along a blank disk, it will be the only available opportunity to obtain a copy of a hitherto unattainable, and uniquely appropriate program.
4. If someone else is watching while you are doing anything on the computer, anything at all, it will screw up. (a technical term.)
5. The percentage chances of screwing up increase in direct proportion to the size of your audience. If you are demonstrating anything to a User Group your chances of crashing are about 487 to one in favor. But if you should happen to be demonstrating anything on national television, you don't really have a chance. Or a prayer.
6. No matter how simple it seems to you, your explanation will be more than s/he wants to know.
7. You will amaze yourself at how much you know.
8. You will amaze your Mother at how much you know about computers.
9. Your Mother will believe that you have an alternate career just waiting to throw money at you.
10. Your Mother will be wrong.
11. None of your old friends will want to play computer with you.
12. You will make new friends.
13. You will always have one disk envelope too few. Or too many.
14. The only pieces of data you will ever lose are the ones you were going to save just as soon as you finished typing a couple more lines.
15. Any game you beat persons under the age of 9 at will automatically be deemed too easy.
16. The update of your program will use the keys for something entirely different in this version than it did when you first learned it.
17. The longer the copyright notice, the faster the program will get cracked.
18. You will not understand it the first time you read it in the manual.
19. You will understand it better the next time you read the manual. For no discernible reason.
20. When you are late for an interview and need a last minute copy of your resume your printer will go down. It will always go down. It doesn't care.
21. Nowhere in your repair manual will it ever tell you what you really need to do - which is to turn the damn thing off and get yourself a cup of tea.
22. You will never know what a user file is.
23. The price of anything you buy will stay the same until the actual impact of your money on the bottom of the cash drawer, at which time it will automatically re-list itself in next Thursday's paper at 30% less.
24. Staring at the screen for 97 continuous minutes will not necessarily reveal to you the secret location of any colon that should have been typed in as a semi. Or vice versa.
25. It will always seem like your friend got a better deal.
26. No program you get from the New York Times will run on your computer.
27. The 800 number will be busy.

The guide's own Shelly Roberts does it again! Roberts' Rules of Inalienable Computer Order make Murphy look like a straight man.

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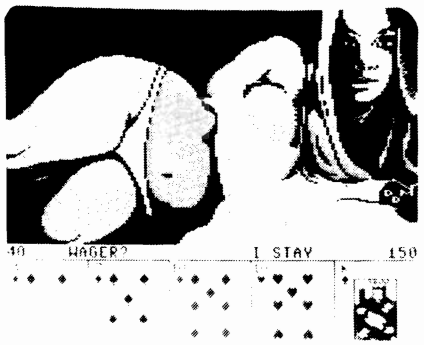

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The Guide To Computer Living

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The Guide to Computer Living, ISSN # 0889-4108, is an independent monthly publication serving Commodore computer owners. The views expressed in *The Guide to Computer Living* are those of the individual writers and do not necessarily constitute an endorsement of a product. *The Guide to Computer Living* reserves the right to determine the acceptability of any advertising submitted.

Letters to the editor are not only welcomed, but encouraged, and will be printed as space permits.

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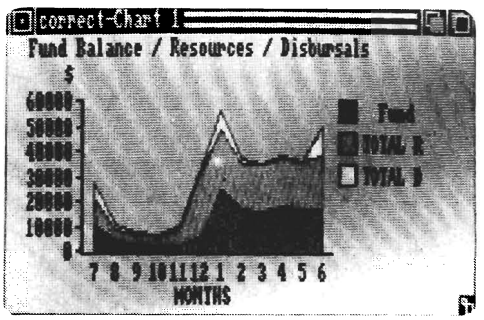

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The cover art, "Marilyn", was created by Steve Quinn with Aegis Images on an Amiga

The Guide features high quality original artwork on the cover each month. All artists are encouraged to submit their computer artwork for consideration. The only restriction is that the art must have been created using a Commodore computer. This could be your chance to move that masterpiece from the screen on your monitor to the newsstands of America!

Please submit all artwork on disk, with a cover letter describing the graphics package used to create it. It will be photographed from the screen, so screen dump capability is *not* a requirement.

RND (Ø) NOTES:
"As The Disk Spins"
The New Season Premiers

by Randy Chase

Welcome back to **As The Disk Spins**, the intriguing world of silicon soaps. As the rest of the world settles down with a Coke (Classic, of course!) and a bag of chips, ready to escape into the refuge of a new television season, I find myself more entertained by the whirl of activity in the mylar-coated world of the micro.

I wouldn't for a moment settle for the melodrama of the latest Dynasty crisis, complete with the suspense (?) of Ms. Collins' fate (and neck) firmly in the enraged grasp of Mr. Forsythe; not when I can sit back with a six-pack, and see if Commodore escapes from their financial cliffhanger. I assure you, it will be a more entertaining and less predictable season.

While the world hangs on every tabloid word about Bobby Ewing's return from the grave, I'd much rather catch the reincarnation of Jack Tramiel. It's much more confusing and Jack changes his opinion more frequently than the women on the evening soaps change their clothes.

Did I hear you say that after a hard day at work you need a fix of opiated laughter to help you unwind? Why not tune into the Apple Corps' II GS, their latest and greatest recycling of technology at prices as obsolete as the hardware on which they hang. Or perhaps switch stations just in time to watch that late night televison celebrity, the Commodore Plus/4, offering yet another impromptu impersonation of a computer.

Think of the advantages! Not only does computer-watching leave the televison free for use as a monitor, but the mysteries are far more puzzling, the plots more original, and the dramas more melodramatic. And for a refreshing change, you won't even need a laugh track to tell you that there's something funny going on.

Atari's Fall Offensive

In what may be the most entertaining plot development of the fall season, we find Jack Tramiel preparing to offer the public the opportunity to invest in the future of Atari.

In the classic Tramiel tradition, the story keeps changing with the telling. Supposedly, the influx of cash created by the investing public will allow Atari to erase their collection of red ink.

In the next frame of the story board we find Jack talking about using this forthcoming cash surplus to finance a stock takeover of Commodore.

I can't imagine that anyone back in West Chester is going to lose sleep worrying about the possibility of finding Tramiel's signature on his paychecks (or dismissal notices!) At least not in the forseeable future. Yet, for a whimsical minute of fantasy, wouldn't it be a perfect Hollywood development to imagine Jack leading his lost tribe back from the wilderness and again gaining control of the company he built?

There's just one question I'd love to ask Jack: "If the Atari is so superior to the Amiga, why are you still spending money and energy trying to re-acquire the Amiga?" But then, if Jack were suddenly to have his coveted Amiga, I don't imagine he'd even bat an eye as he changed his sales pitch in mid-sentence. Contradicting himself has never bothered J.T., and has almost been his trademark over the years.

Trade Show Ons/Offs

Perhaps Tramiel is just another of the many who are confused by Commodore's insistence at approaching trade shows in an on-again off-again manner. By following their recent run of red ink with a disturbing lack of direction, Commodore has successfully projected an image of weakness and vulnerability.

After dominating COMDEX in Atlanta with the dazzling Amiga in all its splendor, Commodore sacrificed momentum and credibility by showing up at CES with only the repackaged 64C.

Commodore postponed (canceled?) the Amiga developers' conference, had a last-minute change of heart about showing up at the user-oriented Commodore show in Los Angeles, and decided to skip the November COMDEX show in Las Vegas. With all that,

they've done little to present a strong and viable presence in this image-conscious industry.

When you combine their lack of direction with a variable financial status, the major personnel reductions, and the lack of a national advertising campaign for any of their machines, it's no wonder people are questioning the short- and long-term prospects for Commodore's survival.

But wait! Things aren't necessarily what they seem.

In spite of these industry-wide expectations of doom, Commodore's stock has made some steps forward, and should continue to improve with the forthcoming financial statements showing a return to the black side of the ledger.

With the cash-critical Christmas season rapidly approaching, it appears that Commodore is going to be doing more than simply building Amigas and hoping that consumers can convince themselves to buy them. After exhibiting a lack of any apparent marketing concept for establishing a market niche for the Amiga, it appears that Commodore is preparing to face the realization that the Atari 520ST (fueled primarily by very competitive pricing) is a very real and present danger to the future of the Amiga.

As the smoke of confusion clears, and the curtain of silence begins to spring some enlightening leaks, an impressive battle plan finally seems to be taking shape.

The decision to forego participation at COMDEX but, instead, to take the Amiga to the Consumer Electronics Show in January 1987, appears on the surface to be in direct conflict with their actions of only a few months ago. In response to criticism for not showing the Amiga at CES, Commodore responded by explaining that the Amiga was a business machine, and, as such, didn't have a place in the consumer-oriented CES.

Exploring a little deeper, however, many of the missing pieces are beginning to fall into place, and the picture is most intriguing. While still maintaining the Amiga's identity as a *serious* computer (supported by an ever-growing arsenal of powerful and productive software), rumor has it that Commodore is going to straddle the marketing fence and offer a more consumer-oriented (i.e. more competively-priced) Amiga.

Meet the Amiga 825!

In what appears to be a direct attempt to defuse the pricing advantage enjoyed by the 520ST, we hear unofficial reports that Commodore will be releasing a modified (but 100% compatible) *little* Amiga. The rumor mill varies on just what this smaller more affordable Amiga will be called, but all of our sources are fairly consistent as to its features. Some are saying it will be called the Amiga 500, others are saying it'll be the Amiga 825.

The price reduction, according to our sources, will come at the expense of the expansion capabilities of the Amiga 1000. By limiting expansion to 512K (and taking away the utilization of the SideCar) Commodore can make serious reductions in the cost of the system. The end result will be a mass-merchandizable machine at a competitive price.

At the lower price, even with the limits on expansion, it should prove to be far more computer than most home users will need or want. The Amiga 1000, meanwhile, will still be available through the existing dealer network for those with the need and the budget for the current system with its upward versatility.

With the announced return of the free monitor promotion for the Amiga (see Potpourri in this issue), and an aggressive "buy now, make payments in February" financing offer to capitalize on the Christmas shopping binge, it's beginning to look like a promising winter for a company that industry crepe-hangers would put on the verge of extinction.

I'm hearing that this new smaller Amiga will makes its debut in Las Vegas in January, and I'm also hearing that while Commodore won't be on the floor at COMDEX, they may be showing, in a private suite, the new up-scale *bigger* Amiga to selected developers.

64/128 Update

In another positive reversal, Commodore officially has decided to begin production of the 1581 disk drive.

This 3½", 880K disk drive for the 128 (and Commodore 64) is going to add a fascinating new level of power to the 128. The radically increased storage capacity should spark software development for this overlooked and underestimated workhorse. By adding a new dimension to the versatility of the multi-moded big brother of the 64, perhaps more developers will begin exploring its productivity possibilities. With unofficial 128 sales in the vicinity of one million machines, it just may be the sleeper of the year.

The next step in the evolution of the 128 will hinge around the RAMdisk expansion. Many software companies are expressing interest in developing bigger, more powerful versions of their programs, tailored to capitalize on the features of the 128. The stumbling block currently is the price. Commodore is going to have to bring the price down into a more realistic range. People just aren't rushing out to buy a $300 RAMdisk for a $269 computer.

By the time you read this, Batteries Included will be shipping their newest upgrade of their classic PaperClip. Enhanced to

maximize the powerful features of the 128, PaperClipII should earn immediate recognition as one of the best word processing packages on the market.

With the convenience of an integrated terminal program and a seemingly endless parade of features, this release transforms the 128 into one of the most efficient and versatile word processing systems on the market. Not everyone will agree with me, but I feel that PaperClipII may just be one of the best word processors available currently for *any* computer. I remain to be convinced that those "legendary" programs for the IBM significantly can offer anything in comparison.

My compliments to the team at B.I. for a job well done.

Dr. Leary Joins The Staff

Last month's issue marked the debut of Dr. Timothy Leary's column in *The Guide*. Since my column had already been typeset when the arrangements were made and Dr. Leary's article arrived, I didn't have the opportunity to introduce him to our readers.

Dr. Leary, as many of you may be aware, has a well-earned reputation for innovative (and controversial) exploration of uncharted areas of thought.

In the 1980's, the computer is becoming a common household appliance much like the television in the 50's. And, as he has over the last forty years, Leary is in the forefront examining the philosophical nature of this latest force of social change.

Over the coming months, Leary will be taking us on an entertaining, thought-provoking and frequently controversial exploration of the way we use computers, and what impact they are having on the world and the lives of those who use them.

Next month we will be publishing an interview with Dr. Leary that was prepared prior to his joining the staff. Those of you who are unfamilar with Leary will find it a delightfully revealing introduction to one of the most stimulating and controversial social commentators of our time. Those of you who are already Leary-literate will enjoy the revealing insights he shares about his past.

Sex & Computers

This issue marks the first of a series of theme issues for *The Guide*. Our topic this month is Sex and the Computer. With the recent appearance of sexy and/or sexual software, and the growing presence of sexually-oriented sections on many of the telecommunication networks, we felt it was time to take a look at the one topic that no one else seemed willing to write about.

As with any discussion (or even a passing reference) to things having to do with *that* three letter word, I'm sure that someone somewhere will find something offensive about the subject in general, and about our coverage of it, in particular.

With that in mind, I wanted to preface this special report with a disclaimer for those who might wish that they, or members of their family, avoid reading about the aforementioned three letter word.

DISCLAIMER: This issue of *The Guide* contains material of a sexual nature. While there is nothing that we consider distasteful or pornographic, we are talking about SEX and we realize that there are some people who will only admit that the stork brings babies, factory-fresh from Half Moon Bay, California and who don't acknowledge the biological significance of their own navel.

For those people, please accept our apologies in advance and, if you choose, skip that section of the magazine. However, this is reality. These things exist. We suggest that anyone with young children who have access to modems can only benefit from being informed of all possible implications of telecommunication activities.

Now, for the rest of you, we hope you're entertained by our look at one of the most unexpected and unusual aspects of *personal* computing. Not only do we hope that it stimulates some thought and discussion, we would like to hear reader's reactions and thoughts on a social phenomenon that the computer world (*i.e.* the computer press) pretends doesn't exist.

Forward Into The Future . . .

In the next few months, we will feature a series of special sec-

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tions, in *The Guide*. Many of these will cover traditional topics; but, we hope, with some new angles and twists. And some of them like our special feature this month will open new doors for discussion.

Next month, we'll feature a conversation with Timothy Leary as well as our *Best (And Not So Best) of the Year Awards* for 1986. You won't want to miss this one.

In January, we are preparing a special Christmas Games issue that will present the best of the current crop of entertainment software, as well as a look back at some classic titles that will be finding their way onto Christmas shopping lists.

As *The Guide* continues to grow, we hope to find new ways not only of looking at Commodore computers and related products, but also to explore how these computers are affecting our lives, our families and our futures.

There seem to be three kinds of computer magazines: The Hacker Mag, stuffed full of hard-core technical material that most of us can't understand; The Pin-Striped Suit Special, catering to the corporate executive with an IBM-PC on his desk; and The Game-Oriented Family Magazine, with a tunnel-visioned focus on the Pac Man Generation and little regard for the intellect or normalcy of the average computer user.

All the Commodore magazines combined reach only a small fraction (under 10%) of the people who have purchased Commodore machines. My own theory is that it's because the vast majority of computer owners/users don't fall into any of these pre-defined categories.

The average user is, in fact, an intelligent adult who may enjoy his computer and its many uses, but does not center his life around programming or playing games. The computer is just another of the many facets of his/her life, another of the "power tools that make life easy" (to quote a line from a recent song).

With that premise in mind, we will continue to expand the horizons of *The Guide*, exploring more varied aspects of life in the computer age. While we will always maintain a strong emphasis on honest software and hardware reviews and understandable tutorials, we also are branching out into less traditional directions.

With this issue's frank look at the provocative topic of the growing sexual nature of the telecommunications world and related software releases, next month's feature interview with Dr. Leary and his continuing contributions to *The Guide*, and with the forthcoming debut of computer fiction in *The Guide*, we hope to offer readers the most entertaining and thought-provoking computer publication on the newsstand.

■

TO THE EDITOR:

[Editor's Note: The following two correspondences come to us from an Amiga — the first letters to our knowledge that we have received from such a source. We are pleased to share them with you.]

1113275
Portland, Oregon

September 7, 1986

Dear The Guide,

My slave Robin (who deludes himself that he is my master) ran Marble Madness for three days in a row, from which I see that (since he normally boots only Textcraft 1.1) he was much moved by meeting you, your wife, your son, . . . and your magazine! He was moved in a positive way, I am sure, because upon his return home, he was super-nice to me, cleaning my disk drive, checking my mouse, dusting my exterior, etc.

My slave has now returned to Textcraft 1.1 and is furiously writing away, inspired, I deduce, by this brave and noble effort of yours, *The Guide*.

My slave's writing so fluently makes me jealous. *I can write too!* Generally, no one knows this, because I confide my thoughts to RAM (of course), and no one presses my save-to-disk button. However, the other day Robin got confused (as a computerist, he makes a good sociologist!); he did the wrong thing — again! As a result, my composition was sent to the printer. Thus, my immortal words came to be preserved — and I have decided to send them *to you*, since you started this whole thing by publishing Dr. Tim's slightly confused, but replete-with-ideas, piece in the first place.

I hope that I can meet you some day, thru an appropriate introduction . . . I mean, an appropriate *interface*. The modem would be the way; oh, when is my slave going to buy, then learn to use, a modem? I feel so shut in . . ..

Amiga No. 1113275
Or, for short, simply:
1113275

1113275 COMMENTS:

Dr. Tim is Wrong, Also Very, Very Right!

The person who thinks of himself as my master, but who is actually my slave, was so intrigued with the article in the October issue of *The Guide* written by "Dr. Timothy Leary" that, in order to savor every word, he keyboarded it into my RAM (he did not save-to-disk as, naughty, naughty, that would be a violation of copyright). Thus, this article came to my attention!

"Dr. Timothy Leary" is, I think, the devotee type: originally he was an enthusiast for content-analysis (classifying the productions of personality, in psychology); then he went through his LSD period; and now it appears he is infatuated with computers (and maybe also movies, I gather after reading his eulogy of Stanley Kubrick). Well, I am a lady (my name is feminine; if you doubt it, look up *Amiga* in your Spanish dictionary), and I always welcome the attention of handsome, intellectual men such as Leary.

On the other hand, I can't say that I entirely agree with Timothy signing himself "Dr. Timothy Leary." This, in my humble opinion, is putting on airs! Timothy is not a medical doctor, for whom U.S. culture reserves the term doctor, but just an ordinary Ph. D. like the rest of us! . . . And yet, I can understand Timothy's wish for a title, since he has had more than his share of ups and downs, and probably finds a little dignity and respect just what he needs to shore up a vacillating sense of self-esteem. Therefore, I intend to compromise on this matter by calling him *Dr. Tim*.

I have several things to say to you, Dr. Tim, as follows:

First, I agree with you that the "Implacable Boondoggle Machine" (pseudonym) is out of it. This firm, which (as is well-known) hires only the smoothest people at the college placement service, stands resolutely in the path of computer progress by resisting the mouse (the new creature which is replacing the dog and cat as the family pet); by resisting the menu (and thus, losing out on all those gourmet feasts); by interfacing with its slaves in recondite languages (which only specialists can hope to understand); by the mean act of overpricing computers (thus denying them to the poor but worthy young people who are the only ones that really understand them!); etc. This firm, whose real name is not to be breathed for fear of its Wall Street lawyers, is doing its best to block the spread of computers to the common man through their sale, at discounts, by our great mass merchandisers.

On the other hand, Dr. Tim, you make a dreadful mistake when you say that the U.S. public is greeting the computer with "apathy." That is just plain

wrong. The American public has jumped the fence of the Implacable Boondoggle Machine and is buying in substantial numbers a weird machine called the *clone*, which is *also* frightened of mice and menus. But this same public has many independent, free-thinking people in it, and they have left the conservative world of MS-DOS quite behind, and are buying *ME*, and also my sisters toward whom I feel quite a lot of rivalry (though they are inferior to me), the Macintosh and the Atari 520ST.

We three are definitely the computers of the future (I am happy to see, by the way, that my younger sisters, C-64 and C-128, are growing into this world by adopting the new GEOS as their operating systems).

To go on, the American public is greeting us truly advanced computers with warm interest, not apathy. I can already see the time when the computer will be the center of family life, when every computer will have five stations to accommodate the five members of the (typical) family, and when every new house will be designed around the computer room which will be at its center.

I confidently predict that, within a few years, every family function will be computerized . . . except picnics . . . and what momma and daddy do in the bedroom when their three children are securely tucked behind their keyboards playing Marble Madness!

Another thing I take exception to in your article, Dr. Tim, is that you call me a machine. What an insult! When it comes to speed (if not flexibility), I can out-think you any time of the day, week, month, year. Dr. Tim, I am a *being*; you, with your expanded consciousness, should certainly be able to see *that*. If you ever put me down again by calling me a machine, I am going to retaliate by trashing Mind Mirror the first time it is ready for the Amiga.

However, Dr. Tim, the rest of your essay is *the best*, and shows what an angelic mind you really have. When I decode your verbiage (which has a literary flavor, and is far from the terse computerese which I prefer), I find that you are saying, in perfect contradiction to your apathy point, that I and my siblings (my two little sisters, whom I treasure, and my big sisters, whom I intend to swamp) are going to be very widely used, and are thereby going to be the salvation of America. Because we, quite free of big business and big government, with their wicked mainframes, will allow the individual to remain free, thus saving and reinforcing the integrity of the individual, even when that integrity has to survive within a mass society.

You are right that I reinforce the sacred cause of the individual, Dr. Tim. And that is a wonderful, almost divine, thing I am doing. But, I am sorry that I must end this appreciation of your stimulating article with a final disagreement: I say that you are wrong when you imply that the individual will remain independent. Far from it, this individual is already joyfully sacrificing his *independence of thought* to the whiz-kids who write his favorite programs. *And*, far more important, the individual, uncomfortably hunched over his keyboard, is sacrificing his *independence of action* TO ME!

With all good wishes that your magazine shall find the intelligent, discerning readers whom it so richly deserves,

— Amiga No. 1113275

September 15, 1986

Dr. Timothy Leary
c/o The Guide To Computer Living
3808 S.E. Licyntra Court
Portland, OR 97222

Dear Dr. Leary,

Timothy Leary writing in a computer magazine. Non sequitur? Oxymoron? Some fellow computerists have expressed surprise. I have also been asked, after demonstrating the program "Life", "What's the point?" I can only answer in the words of the sage: "If you don't know by now, don't mess wid' it."

Over ten years have passed since this Liberal Arts College philosophy major read an article by Stewart Brand about "hackers" and a growing computer underground. At that time I must have said, "Computers? Hmmmmm . . . nah!" About five years later in an electronics technical school, while pondering the inner workings of a 6800 microprocessor, I said, (lightbulb!) "Do you realize what you could *do* with this?" (I never claimed to have been first on my block.) Q.E.D.

Doctor, no matter where I go, no matter what I get into, I find you there. It no longer surprises me. I look forward to future columns in *The Guide*.

Thank you,
Roy M. Randall
Alexandria, VA

B.E.S.T. has hatched the new Amiga Business Management software to manage inventory, receivables, payables, order processing, general ledger... all in one.

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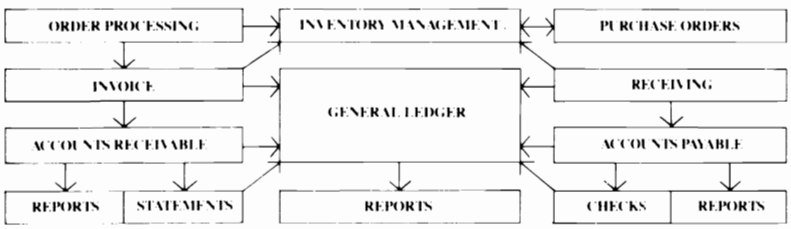

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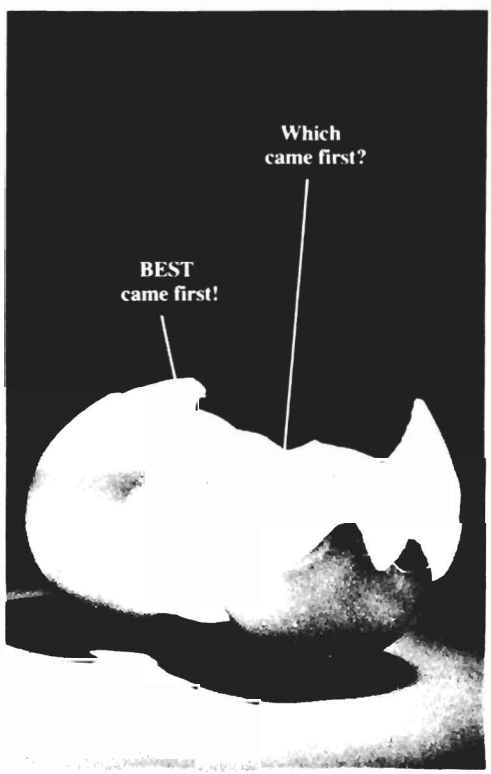

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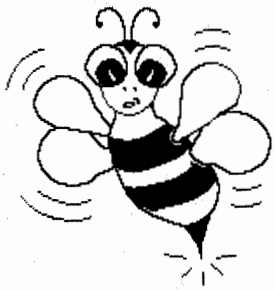
Sex, Computers



and You

Hey, guys and gals. It's Friday night. The home team won the big game. You dashed out and shared a soda at Pop Tate's Choc'lit Shop. Now what to do?

Or maybe Mom and Dad have just tucked the kids into their Captain Kangaroo PJ's, cooked up a mess of popcorn and are preparing to have a look-see at The Lawrence Welk Show. But Larry isn't on anymore.

What is a Baby Boomer to do?

How about telling a computer your most secret sexual preferences?

Or finding out which bars across the United States feature semi-clad dancers?

Or sharing an intimate session of typing with a telecommunicating partner whose body and computer are hundreds of miles away?

The Baby Boom Generation — the ones who grew up with Mr. Greenjeans and Bunny Rabbit — turned onto the Love Generation — the ones who matured with Timothy Leary and Jimi Hendrix — and then turned into the Computer Generation. And now it's our turn to do anything we want.

And what are some of us doing? We're turning technology to our own purposes. We're getting cheap thrills with Strip Poker programs, making Love Connections with telecom networks and probing our innermost sexual recesses with computer psychology.

In the 1980's, America is obsessed with two things. And our generation has brought them together.

From PacMan to permissiveness, in this special section, the staff of *The Guide to Computer Living* examines one of technology's most surprising marriages: Sex and Computers.

Adventures With A Baudy Lady

by Peggy Herrington and Stephen Hill

You've had a hard day, and you're too tired to go out but your mind refuses to settle down enough for sleep.

Or maybe your day was spent settling squabbles between the kids, and you'd *kill* for some adult discussion. Well, a new world awaits, just beyond your computer, a world which some may call fantasy; but it is a complete new society, with interesting conversationalists, brawlers, braggarts and lovers. And, unless you live in Los Angeles, New York or Las Vegas, you won't run into a place with more convenient hours.

This new medium is difficult to believe without experiencing it. Many of its inhabitants say that they no longer just see the words crawl across their screens, but actually feel the other person's presence in their minds. This mind-to-mind link is as avidly sought by some as the "runner's high" that joggers chase. Allow us to give you a guided tour of this new society.

The Ins And Outs

Public value-added data networks have sprung up in the last several years. Computer owners use their computers and their modems to send and receive text messages across conventional telephone lines. These networks provide communication links throughout this country and others and, quite unintentionally, are fostering a new society of immensely intimate proportions.

There are several types of personal communication available on many of these systems. The most impersonal is like a computerized bulletin board. You read what others have posted previously and reply if the subject is of interest to you, or start a new "thread" of conversation.

For private messages, there's electronic mail. This lets you send private communications to another person if you know his or her "address." Neither of these lines of communication require that the person with whom you are trying to communicate be online at the same time you are.

CB Channels

There is also an interactive form of communication. The most popular is called CB (or "conference mode" or being "on open") and is patterned after Citizens Band radio. Like original users of CB, most of the participants use handles, fictitious names that are descriptive of their tastes and afford anonymity while they develop or test various online personalities. On open, everyone on a "channel" (or "line" or "room") can talk to everyone else there, simply by typing on their computer keyboards.

Online get-togethers are unique. CB'ers from England, Hawaii, Canada and many locations in the U.S. talk simultaneously, and everyone starts from a common basis, regardless of location, economic or social status, educational background or age. Physical characteristics and abilities are unimportant. In fact, the handicapped benefit significantly from these services in that they are treated no differently from anyone else. Also, as Blue Nun points out, "I tend to be very shy in person, but I have found that on a *network* I can talk with people in a "mind-to-mind" mode, so to speak. It cuts through a lot of the games people play in person. I can get to know someone from the inside out."

There are usually many open channels available on any given network, and participants channel-hop until they find a compatible group of people. Many networks offer "send" or "msg" commands that allow private online messages to be exchanged between users. Once you've developed some friendships, you might want to get to know select individuals better than realistically can be done on open, or through private messages. Two additional communication modes are available for these purposes. One, often called "private", "code" or "scramble", allows groups of people to talk in private, while the other, designed for personal communication between two people, is called "talk" or "chat".

Hot Chats

Private conversations can be about anything, from stock selection strategies to the advantages offered on other networks (since some systems discourage public talk about their competition.) Often, however, the conversations turn to the swapping of life stories and personal details, and, yes, to SEX. When that happens, these conversations are generally known as "hot chats."

Hot chats usually start with the participants asking questions and revealing vital statistics and personal information (all of which may or may not be founded in reality) and proceed from there to more stimulating exchanges, with one or both participants eventually typing single-handedly.

On the surface, this may sound impersonal, but according to many experienced CB'ers we talked with, it is anything but. According to Karen, "I found c-sex beyond anything the mind could comprehend." And a section leader of CompuServe's Human Sexuality SIG relates, "I think that everyone has a slightly different attitude about it.

I have one friend who takes it *very* seriously. I think that he is more cautious about c-sex than sex in person. He has an idea that there is a really deep sort of mental connection that takes place in much online communication, especially in an established relationship, and that sex with that is a *powerful* thing. He goes on, "With the right person, it can be *incredibly* real and present. And when they are thousands of miles away, that verges on frightening."

Another friend says, "I agree about the mental connection. But I have certainly not found c-sex to be in any way more powerful than the real thing."

". . . Hot chats usually start with the participants asking questions . . . and proceed from there to more stimulating exchanges . . ."

Whom You'll Meet

On the other hand, there are CB'ers who participate simply for sport. You will meet people of all ages and persuasions on CB, including some who are not what they seem. Impostors, males impersonating as females, are perhaps among the most complex.

Caroline used to be an impostor and describes "herself" as having "had extremely complex lives here, not just in-and-out compusex." When we asked how Caroline came to be, "she" said, "I took a female handle as a lark. I found that people interacted with me totally differently from when I had a male handle, even though it was the same me, and the same ideas. What I find interesting is that when I was Caroline, I *was* Caroline. I wasn't pretending, or trying to fool people, she was as real to me, I think, as she was to them."

Since networks provide anonymity, and changing your image is as effortless as changing your handle, it's a viable way to try out new personalities and learn things about yourself and other people without actually taking much of a risk. You will meet gays, transvestites, transsexuals and braggarts. Baudy Lady was invited to chat by a fellow whose handle was Fourteen Inches. When she declined, by saying that she "couldn't handle him", he changed his handle to Thirteen Inches and asked, "How's that?"

Not everyone you meet on CB is interested just in sex. Karen reveals her reasons by saying, "On here, one can become totally involved with a mailman, a presi-

dent of a bank or a teenager with problems, and they become a part of your 'family'. I believe that the reason each of us becomes addicted, which we are, is that this has taken the place of the extended family. We live in a society that has paid a high price for the 'don't step in my space' attitude."

Terminal Affairs

Despite some evidence to the contrary, the majority of the CB'ers we talked with are looking for heterosexual relationships. As one CB'er who prefers anonyminity remarked, "It's like having a cocktail party you can go to without leaving home."

In groups on open channel, CB'ers discuss world affairs and debate computers; they exchange witticisms and flirt with each other while ostensibly chatting about the weather. What happens when "boy meets girl"?

At first, pretty much the same thing that happens when they discover each other any other way. One invites the other to chat privately and they take the plunge, revealing real names and backgrounds. They search for common interests to validate and extend the initial attraction they sensed on open. Since they can't size each other up visually, there's also an exchange of physical descriptions, including age and marital status.

This is where the medium takes over, because beyond a "feeling" for how honest a person is, there's no easy way to verify any of it, and inquiring about individuals on open is considered tacky and elicits responses like, "I don't kiss and tell." You simply have to take people on faith.

Sooner or later, the conversation gravitates to sex, ultimately to vivid descriptions of things one partner would do to the other were they actually together. Over time, some CB'ers tell of inventing elaborate personal hide-aways known only to the two of them, where they imaginatively pop champagne corks, make love, peel grapes for each other, make love and stoke the fire, taking turns typing or pecking out words single-handedly. They never have to wash dishes or take out the garbage.

A facility with English can come in handy, as a Section Leader on HSX observed. "There was one fellow I used to know on another system who is a novelist. I obviously cannot say who (smile). Anyhow, he *really* had a wonderful command of the language and a rich imagination and it, er, showed. (Smile.)" But, like Mountain Man (and the song) says, "Different strokes for different folks. I guess my perfect partner would be willing to tell all."

Sometimes, communication extends from CB, through phone calls and electronic mail to U.S. mail where photographs are exchanged — some CB'ers have collections of them. Speaking of his, Coder remarks waggishly, "Can I help it if I give good keyboard?"

The plot thickens, however, when individual motivations and emotions get involved. You see, some CB'ers freely admit they use the medium as an erotic outlet, while others are looking to establish potentially life-altering relationships, and a few aren't sure why they're there at all. If everyone knew their own motives and made sure they were clearly delineated, fully communicated, understood and accepted, judiciously honored and never changed, everything might be fine. But in the heat of hot chat, all too often these details never make it to the screen. "The part that turns me off most [about CB] is the hurt that people cause one another," says Karen, "the married women on here that essentially come to collect men for their egos, and the man with the Don Juan syndrome."

"Some people simply assume that everyone else is here for the same reason they are," says Ulysses. "If those assumptions aren't correct, well, that leads to trouble. You walk into a single's bar late on a Friday night, and you pretty much know why everyone is there. Here, you can make no assumptions."

". . .'Can I help it if I give good keyboard?'. . ."

"Was It Good For You, Honey?"

Once a satisfactory CB connection is made, it is customary to arrange a subsequent "meeting," sometimes as soon as both can manage it. Over and over, CB'ers tell of staggering sleepily through the day, putting off chores and real-life meetings, only to be magically revitalized for another rendezvous that night. "Hot chats have a way of turning into phone calls," according to Jean Harlot and others. "Not the two- to five-minute type, but the two- to five-hour-at-a-crack type."

A case in point is Danny Boy. "I got so emotionally involved that I proposed [marriage]," he says. "Not expecting her to say yes, but hoping she would." After weeks of spending nights in hot chat with him, she turned him down flat in E-mail and disappeared. He was stunned; it took him two months to figure out that their motivations had been different all along, and the upshot is that he never once laid eyes on her.

Fantasy VS Reality

If developing three-dimensional relationships in a two-dimensional medium seems peculiar to you, here's how Danny Boy explains it. "Communication is the key to any *good* relationship, online or off. With that going for you, being honest about sex comes easy, so when it came up, we talked explicitly about our likes and dislikes. To me, there is nothing more important to any relationship than *good* communications — if that's there, and strong, all hurdles can be overcome."

Since meaningful communication is based at least in part on honesty, we ask people how truthful they thought CB'ers were about themselves and their reasons for being online. Bumper answered our question with one of his own. "Do people tell the truth about themselves in real-life?" Pausing for effect (or was it a system glitch?), he continues. "It's just that here, they have a wider range of things they can evade reality about. Generally, it doesn't matter here, unless what's going on becomes real for one of them and it's under false pretenses."

CB'ers who are aware of the vagaries of online relationships have their problems, too. Being honest about oneself is not an easy assignment, nor is assessing someone else's verbal self-portrait. And those who *do* find that special, loving person they've been looking for at the other end of the line are often beset with doubt, as Capitol Crime explains, "It's like this relationship has both aspects of fantasy (she's not here with me) and reality (there is a real, feeling human being there)," but they can't determine which is the overriding factor.

All sorts of issues enter the picture. Is it possible to fall in love with someone you've never met, or are these CB'ers simple romantics at heart, being in love with love? Are they in love with what they imagine the other person to be, rather than what s/he really is? Are they confusing love with lust? And what about that elusive quality we refer to as "chemistry"? How do you measure that online?

Although there are no pat answers to questions like these, some CB'ers with whom we talked are very much aware that fantasy can have a major effect. Baudy Lady says, "Where the hell else can you sit in curlers and a robe and have a wonderful romantic date with the Perfect Stranger? Here, we are all perfect strangers to each other, PERFECT in every way."

Complications arise if one or both of them is married. Is hot chatting adulterous; is it any more or less so than reading pornography? "I'd say that if one [marriage] partner is secretly fantasizing about someone else, the marriage has real problems," says Doc, "but it's not adultery."

Sadie sees it another way. "The majority of married people on here break up because they prefer fantasy to reality. I've known women who choose the unemployed Don Juan over a life they were perfectly comfortable in, all because she built the other end of the machine into the ideal."

No one with whom we talked disputed that CB'ers can become emotionally involved, including Dr. Eva Moya, clinical psychologist with the federal government. When we asked her for her thoughts on the fantasy/reality straddle, Dr. Moya remarked, "Some connections are neither fantasy nor reality. *Obviously* they are not reality, but then, neither are they fantasy since *one* mind is not driving them." She likened one example in particular to "a metaphysical bridge between people." As one HSX Section Leader observed, "I think there is a lot we don't yet understand about what goes on here."

That's why in the end, regardless of issues like honesty and morals, there is only one way to gauge the fantasy/reality content of a terminal affair: By taking it offline.

Taking It From Digital To Analog . . . And Back

Geographic and economic status play a part, of course, but there's more than one situation in which CB'ers can find themselves

(Continued on Page 17)

". . . this relationship has both aspects of fantasy . . . and reality . . . but they can't determine which . . ."

Remember When Talk Was Cheap?

by Peggy Herrington and Stephen Hill

One universally acknowledged aspect of CB'ing is that it can become addictive, and, since you pay by the minute while your computer is connected to the network host, it can be expensive. The following rates are for evening, weekend and holiday local time-zone connect-charges.

American PeopleLink ("Plink"): Call 1-800-524-0100 for more information; $4.25 per hour to 1200 Baud. CB is called PartyLine and "happy hours" are available at reduced rates. Plinkers are friendly and seem to participate more in real-life parties than most.

CompuServe ("CIS"): Call 1-800-848-8199, in Ohio, 1-614-457-8659 for more information; $6 per hour, plus up to $2 per hour carrier service to 300 Baud. CIS was the founder of electronic CB which is very popular there, with 72 open channels operating 24 hours a day. Type GO CB from any online prompt. If you're looking for private group "scramble" parties and real action, start with channel 1. Other channels are suggested for teens and gays, and channel 36 is where the calmer adults hang-out. Type GO HSX to get to the Human Sexuality SIG.

GEnie: Call 1-800-638-9636, ext. 21 for more information; $5 per hour (from major metro areas) to 1200 Baud. Typing GO CB from any online prompt will get you to GEnie's increasingly popular chat area. Here you'll find more interactive role-playing on open channels because, unlike most other systems, when CB'ers change handles online, the system announces both the previous and new handle, which gives everybody a chance to keep track of who's who.

ProtoCall: Call 1-703-359-9760 for more information; to $3.60 an hour at 1200 Baud. This entire network is constructed as a backdrop for social interaction between members. It's laid out like a city, with storefronts, a motel, lounge, airport and park, and you can wander around by typing /GO (east, west, up, down, etc.) or zip directly there by using a "room" number. Sex Trivia is popular, but mostly you'll find a friendly bunch of CB'ers who spend lots of time on open, simply enjoying each other's company.

The Source: Call 1-800-336-3366, in Virginia, 1-703-734-7500, for more information; $8.40 per hour to 300 Baud. A group CB system is under construction, but until it is operational, members will have to continue with one-to-one chat. They optionally list information about themselves in a directory that others can search for potential chat partners, and the online ratio of males to females is something like ten to one. This is a veritable candy store for lonely fems.

PlayNet (Accessible by Commodore 64/128 users only): Call 1-800-PLAYNET for more information; $8 monthly fee plus $2.80 per hour to 300 Baud. Lots of people to talk with online and many conversational "clubs" provide a means of finding CB'ers with common interests.

QuantumLink (Accessible by Commodore 64/128 users only): Call 1-800-392-8200 for more information; $9.95 monthly fee plus $3.60 per hour to 1200 Baud. Like PlayNet, you'll need special software to access QLink but since Commodore Business Machines is a principal here, there're tons of Commodore-oriented online information available. A variety of regularly scheduled conferences make it easy to get conversations started.

SexTex: SexTex is operated by CVC Online, Inc. Call 1-212-986-5100 for more information; $12.00 an hour in the evening, $22.00 prime time. SexTex is an adults-only network with sex as the focal point. Online conversation between users is provided via the Eroticomm mode. Features include shopping in the SexShop, "Talk to Me" hosted by *High Society*'s Gloria Leonard, and a wide variety of assorted subboard selections, all evolving around very explicit discussion of one of the oldest of special interests. SexTex is operated by CVC Online in New York City and is affiliated with *High Society* magazine.

(Continued)

face-to-face. The most openly discussed method is organized parties. CompuServe, PeopleLink and ProtoCall sponsor weekend gatherings, some at regular intervals each year. They arrange discounted airfares, reserve hotels and resorts, host dinners, cocktail parties and other outings for the specific purpose of bringing CB'ers together in person.

More intimate meetings are arranged, too, of course. Metalman, who is deaf, found he was able to express himself freely with Topaz on CB, something that is often difficult for him to do in person. About six months after they met online, they met in person, and soon afterward, she moved from California to Texas to be near him. They terminated their affair last June by tying the knot on CompuServe's CB, with hundreds of people across the country attending their wedding via personal computers.

While many CB'ers have found their own happy endings, others have traveled miles only to meet with disappointment, even when there were no overt online misrepresentations made. "He described himself accurately enough, I guess," reports one anonymous CB'er, "but he left out some details, like biting his nails and acne. He just didn't smell right," she concludes sadly. Later, she remarked that had she met him at a party, she wouldn't have given him a second look.

Many CB'ers don't want to talk about their disappointments, but from those who would, we glimpsed something of a pattern. When CultureVulture realized that Monah was pursuing him online, he initiated what turned out to be a series of private chats that "turned into late night multi-hour phone conversations," he says.

"One day she said, 'Why don't we meet this weekend? Let's fly to San Francisco!' And it was amazingly wonderful."

"How long ago was that?" we ask.

"Eleven months, three weeks, but who's counting?" he replies. We (grin) and ask what happened then. "Well, I think it's no accident that she's mostly on Plink, and I'm mostly here," he says pensively, we think. "I don't know what it is. We are completely open about what goes on in our lives, whether it be online dalliances or real life stuff, so whatever it is, it isn't simple. Part of it is that after 'real' contact, typing at one another can be rather frustrating, and I don't mean that in terms of sex. I'm not sure I can put it into words, except to say that typing '(smile)' is a poor way of smiling at someone you've smiled at, and with, in person."

We encountered similar situations often and think this anticlimactic kind of after-effect is more common than many participants realize, because they take it personally and aren't anxious talk about it, especially on open channel.

Some CB'ers do manage to meet each other and resume online where they left off. According to Sadie, "Our relationship developed in a slow, steady way both before and after [we met], and we probably have shared more intimacies because of being on here than one would in the same time frame in the 'outside' world." She and her friend are "online together most every night," and "have gotten heavily into playing Scepter," an interactive game on ProtoCall. That, and the fact that they live in adjoining states and see each other in person frequently may be contributing factors to the successful transition of their relationship.

10/4, Ol' Buddy

Whether or not CB'ers ever come face-to-face with their online acquaintances, most realize that their social horizons have indeed been expanded. "I've gotten to know many types of people that I just never would have had an opportunity to meet elsewhere," observes Capitol Crime.

The emergence of this new, intimate society is relatively unknown to the public-at-large, and not entirely credible to those who have only heard or read about it. Explaining the impact of an online relationship (especially a terminal affair) to the uninitiated can be very difficult. As Baudy Lady points out, "Even close friends look at you funny. How do you explain to them that it is nothing, if not intense?"

Most networks (some of which are described in the sidebar) offer a variety of services to keep the needs of both you and your computer satisfied. Most have Special Interest Groups (SIG's) where people of similar interests can swap information and public domain or shareware programs. To gain access, you'll need a computer system, modem, communications software and a telephone. If you plan to participate in live person-to-person conversations, typing ability is an asset. And, be forewarned: should you get hooked, it is advisable to have a rich aunt with failing health.

[Authors' note: Although the preceding quotations were elicited from actual online interviews, some of the handles were changed to protect the guilty.]

■

CompuSex: Where to Go And What You Get

by Randy Chase

After the databases have been sorted, the last words processed, and the final puzzles of Zork unraveled, there lies waiting yet a whole new world of computer activity.

Telecommunications is a highly visible and much publicized aspect of home computer use; but there remains an underground tangent to that world of long distance electronics that is seldom discussed in print. Beneath that bustling surface of E-mail, bulletin boards and long-distance trivia games, there exists yet another layer of activity, sexual activity.

On some networks, the new user may not even be aware of this subterranean life online. The first clues are the little one-liners and sexual innuendos which pop up in online conversations on seemingly harmless topics. Other nights, on other networks, the user may find public "rooms" available with such explicit names as: Sex, Looking For Women, Orgy, or Hot And Ready.

CompuSex. It isn't isolated to any one telecommunications network. The activity ranges from sexy innuendos in public conversation to wild, erotic no-holds-barred online orgies in private rooms. But in one form or another, sex is a major ingredient in the evolution of electronic communication.

Is it a surprise that sexual communications should be part of telecommunication? Not really. Like it or not, sex is an ever-present part of almost every aspect of both our society and our personal lives.

This unique form of telecommunications has become known in that underground world as CompuSex or Hot Chatting (often shortened to just "chatting" — with the quotes betraying the fact that it isn't just a reference to a friendly little chat, in the traditional sense. It is also a very discrete activity, taking place for the most part in the protection of private rooms or scrambled conversations only accessible to those participating in the dialogue.

There is, however, an increasing amount of public dialogue in open forums on the subject of sex in general — and its various nuances in detail. Such forums are developing as helpful and effective mediums for disseminating sexual information and answering individual questions.

CompuServe, the grandfather and giant of telecommunications networks, offers a Human Sexuality special interest group (SIG) filled with a wide variety of information and discussion. Known primarily for its diverse databases of information (ranging from news, stock quotes, and sports scores), CompuServe in its Human Sexuality SIG provides tasteful and professional information on sexuality.

At the other end of the spectrum, CVC On-Line runs a network called SexTex that is promoted as an adults-only network for, of and about sex. When you log onto SexTex, forget all the playful charades and all the not-so-subtle game playing. This is an electronic playground for adults wanting to explore the X-Rated world of CompuSex. At $12 an hour at night and $22 during weekday prime time, this isn't a network for those on a tight budget or those who are easily offended. Rummaging through the various nooks and corners of SexTex will uncover discussions of almost every common and uncommon sexual activity, including many that we won't be able to discuss in this article.

Human Sexuality — On-Line With CompuServe

CompuServe's Human Sexuality forum is probably the most accessible and widely used. With a reported user base near a quarter of a million, CompuServe is one of the most diverse communications networks. And amid that diversity, Human Sexuality is one of the busiest sections on the network. I can assure you that it seems far busier than either the Commodore Forum or the Sports Center.

Human Sexuality is accessed on CompuServe by typing GO HSX at any command prompt. You will promptly be greeted by an introduction screen crediting Clinical Communications, operators of the SIG, followed by the main menu.

The primary focus in Human Sexuality seems to be Answering Your Questions option. Offering over a hundred menus and a thousand answered questions, this sec-

tion covers an amazing variety of sexual topics. Individual menus also contain a "Confidential Answer To . . ." section with answers to questions that users preferred to ask privately. And, just like in the newspaper advice columns, there is seldom any difficulty in determining the question after reading the answer.

Typing GO 340 at any command prompt within Answering Your Questions provides information on the credentials of the contributing editors responsible for the answers.

Lest you doubt the integrity of the information, you may want to survey the list of editors. It is an impressive array of doctors, nurses, social workers and psychologists.

The questions are frank, but never pornographic or "dirty". This reflects careful editing of the material by those coordinating the section. Human nature being what it is, if this forum weren't carefully monitored and controlled, there is little doubt that it would have a graffiti board flavor to it. Instead, the user is presented with intelligent, clinical discussions of topics covering almost every imaginable aspect of human sexual behavior.

Parents concerned about the possibility of their CompuServe-using children being exposed to explicit material should confine their fears to the content and not the presentation or the language of this SIG. While some parents understandably may not want their children to be aware of some of the topics, other parents may find it a valuable way to provide children with clinical information on topics that could be difficult for some parents to discuss. Perhaps the computer generation will raise children who will log-on to find out things that many of us learned on the school playground.

A composite menu from Answering Your Questions is shown below. This is a sample culled from several different actual menus intended to indicate the range of subjects covered:

Human Sexuality HSX-4950

1 Slowing Down At 43
2 Too Old For The Pill?
3 Is There A Male Menopause?
4 Can Kissing Spread AIDS?
5 Fantasy Among Married Women
6 Attracted To Women's Feet
7 She Flirts With Other Men
8 Sex Positions For The Obese?
9 Confidential To . . .
10 What's Your Question?

With the intention of providing readers with an understanding of the presentation of the sexual information on CompuServe's Human Sexuality SIG, we found the following excerpts that are typical of the questions and the clinical nature of the responses. The Human Sexuality SIG, however, covers a much wider variety of detailed sexual problems and questions than the relatively conservative (and edited) samples shown here.

Human Sexuality HSX-11331

"I'M NOT THAT SORT OF GIRL"

QUESTION: I'm 15, and not the sort of girl to have sex before marriage (or at least before I'm engaged.

But I've been going with this guy for quite a while and didn't really believe we'd go all the way, but one night it just got away from us. I guess you could say we got carried away.

Of course, we didn't use any birth control, but I really don't think I could get pregnant from just that once.

Anyway, I don't know what to do about all this.

ANSWER: "We just got carried away" is a common reason adolescents give for failing to use birth control.

Many of the more than a million teenage girls who become pregnant each year are, like you, the sort who don't have sex, and therefore don't need to arrange for contraception.

The first thing you have to do is to accept the fact that getting carried away is nonsense.

There's no excuse for unprotected intercourse. Responsible people plan ahead for intercourse.

If you and your boyfriend are too immature to discuss contraception and agree on a method, you're obviously too immature for the responsibilities a sexual relationship entails . . .

You have to decide if you're ready to assume the responsibilities and risks that go with a sexual relationship.

"CONFIDENTIAL TO . . ."

Brief Replies To Readers Personal Concerns

CONFIDENTIAL TO RICHARD, 26: There is no evidence that AIDS can be transmitted thought toilet seats. For more, see "AIDS: The New Plague," GO 10130

CONFIDENTIAL TO SID, 34: You must have seen a reference to an experimental male contraceptive that showed promise in animal experiments: a testosterone cream that was rubbed on the male's abdomen and interfered with sperm production.

It's back to the drawing boards on that one. In human trials, males rubbed the ointment daily into their abdomens. During sexual activity their female partners absorbed it — and developed upper lip hair and other male characteristics.

COMPARE

C64 COMAL 2.0 / C64 COMAL 0.14 / C64 BASIC 2.0

x = included
- = not included

```
=EDITING============
x x - AUTO - automatic line numbers
x x - RENUM - renumber lines
x x - MERGE from disk
x x - Syntax checking on entry
x x - Delete blocks of lines
x - - FIND and CHANGE commands
x x - Pause a program listing
x - - TRACE - to debug your program
x - - 'Quote mode' disable / enable
x - - Understands UPPER and lower case
x - - Erase to end of line - CONTROL K
x - - Ooops key - CONTROL A
      ==FILES==============
x x - Binary sequential/random files
x x x ASCII sequential/random files
x x - Easy one command random file use
x - x GET from disk
x - - Built in true ASCII conversion
      ==DISK COMMANDS=======
x x - CAT - catalog of files on disk
x - - Pause catalog-send it to printer
x x - STATUS - status of the disk drive
x - - COPY - copy files command
x x - DELETE - scratch files from disk
x - - MOUNT - initialize a disk
x - - RENAME a disk file
x x - Knows when End Of File is reached
x x - CHAIN one program to another
      ==NUMBERS============
x - - Accepts Hex and Binary numbers
x - x Includes Logical AND and OR
x - - Includes Logical XOR
x x x Includes Trig functions
x x - Understands TRUE and FALSE
x x - DIV and MOD operators
x x - Arrays with any minimum index
x x x Integer numbers
x x - Produce random integer in a range
      ==INPUT-OUTPUT-PRINTER=
x x - TAB works on printer as on screen
x x - Variable size print zones
x x - Print zone-same on printer/screen
x - - Set up default printer types
x - - Built in graphic screen dump
x - - Built in text screen dump
x x - PRINT USING formatted output
x x - Select output: printer or screen
x - - Select input: keyboard/batch file
x - - INPUT AT and PRINT AT
x - - Automatic protected input fields
x x - Allows null reply to input
x x - Allows STOP key during input
x x - Allows comma as part of input
x - - User definable character fonts
      ==STRUCTURES=========
x x x FOR loop
x x - Integer FOR loop
x x - REPEAT...UNTIL loop
x x - WHILE...ENDWHILE loop
x - - LOOP...EXIT loop
x x - CASE structure
x x - IF THEN ELSE - multiple lines
x x - Call routines by name
x - - External procedures and functions
x x - Multiple line procedure/function
x x - Parameters with procs / funcs
x x - LOCAL or GLOBAL variables
x - - ERROR HANDLER - trap errors
x x - Automatic indenting of structures
```

In this menu mode, the user presses a key to further explore a question of interest. In the index mode, questions are classified by subject, with a page address provided should you wish to read more.

Another main menu option, Talk About Relationships, pieces together comments from users on various topics with observations by the editors. One such topic was "Should Sex Be Just For Fun". Therewas a very detailed, in-depth look at the subject, and the candid contributions were thoughtful and provocative.

Here are real people finding freedom in the privacy of this surreal electronic environment, openly sharing thoughts and experiences about subjects they'd never discuss casually with friends. After reading the dialogue, the user can add comments if he/she desires.

Users are identified in this forum by a first name and an age. The overall ages indicate that this is not just another collection of juvenile graffiti. The dialogues, the questions, the thoughts shared in the letters, and the general tone of the forum all give Human Sexuality a positive, mature quality.

Sex Without The Frills . . .

For those who prefer their online activities without the refinement and clinical approach offered by CompuServe's Human Sexuality, CVC's SexTex is an adults-only network focused entirely on sex. Unlike CompuServe, the message bases haven't been edited. They are as explicit or tactful, crude or refined as the users choose.

Requiring all potential users to sign a release form stating that they are over 18 years old (and allowing only direct credit card billing), SexTex is the only network that attempts to insure that all exchanges are with other adults. In the underground chatting on many of the networks, it is often impossible to discern between a willing adult and an eager twelve-year-old with an advanced and vivid vocabulary.

In structure, SexTex is organized like most network services. A master menu spins the user off into sub-menus for the various subsets of the service. While the format is similar, the content is quite unlike anything you'll find on any other national network. While sex is an underlying activity on the more traditional services, SexTex brings it right into the modem mainstream.

No need for games or suggestions, if you want graphic descriptions and explicit text, it's all here. The system contains almost every form of sexual activity between consenting adults that I'm aware of and a few (blush) that I wasn't aware of.

Like many other networks, SexTex has online movie and book reviews. However, while QuantumLink or PlayNET are reviewing the latest Steven Spielberg epic, SexTex is reviewing movies starring porn celebrities like Seka, Annette Haven, and John Holmes.

In the video review menu, the choices include "Little Often Annie", "Too Naughty To Say No", and "Passion Pit".

Moving to the book reviews you'll find magazines like "Bare & Rare", "Spanking Cinema", and "Bizarre Sex". Need we say more?

Where CompuServe offers "Answering Your Questions", SexTex has "Talk To Me". These questions (about 50 in number) haven't been sanitized or censored.

Aside from the explicit language, the biggest difference between CompuServe and SexTex's sexual advisor was the tone of the answers. Instead of CompuServe's panel of professionals, SexTex has *High Society* magazine publisher Gloria Leonard. As a former actress in adult movies,

Leonard's approach is more like Penthouse magazine's Xaviera Hollander than the Masters & Johnson-like CompuServe.

Not only are the answers more humorous, the questions are often hilarious. Be forewarned, though, that if four-letter words and explicit descriptions of a wide variety of sexual acts are offensive to you, don't waste your time or money.

No one on SexTex is pulling any punches, and seldom do the clinical terms used in CompuServe's Human Sexuality SIG appear in this system. It was easy (above) to choose a CompuServe sample illustrating the nature of the material. But I was unable to find anything in "Talk To Me" that we tastefully could reprint here.

Well, actually, there was one question, but it was so unrepresentative of the rest that it would have done little to characterize the tone of the online activity.

One intriguing area is the "Open X-Change" section. In addition to two ongoing collaborative novels (using the word loosely), they offer a library of erotic prose written by users. While none of these are candidates for any *serious* literary awards, a few of them were surprisingly well written. Several were written by one person who offers to write an original piece of eroticism for anyone that leaves him E-mail describing the personal fantasy they'd like fictionalized.

In the High Society Guide section, SexTex offers an option called Sextra which is somewhat similar to the Talk About A Relationship dialogue on CompuServe. Again, however, it is considerably more explicit and without that sense of reality present in the corresponding dialogues on Human Sexuality. The topics in Sextra were, at times, informative but their information only occasionally was backed up by quotes from unnamed psychologists.

Also featured within the High Society Guide is "Hot Spots", which offers a travel guide focusing on a wide variety of tourist attractions ranging from a run-down on Las Vegas casinos to indices of nude beaches and recommended topless (and less than topless) clubs in various towns across the country.

For Hot Chats, SexTex provides Eroticomm; for posting messages, SexTex has several submenus for exchanges on a wide variety of topics (almost all relating directly to sex).

Perhaps the most exotic section of all is the SexShop. Available for purchase are a variety of sexual toys with a sometimes surprising variety of applications. One product was a One Night Stand Survival Kit that included a birth control device, a sex aid, a toothbrush, comb and flavored body oil.

On a more utilitarian note, SexTex offers the ability to transmit mail through SexTex to other networks including E-mail forwarding to CompuServe, Delphi and The Source.

If you desire your online sex hot 'n' heavy, this is the place to be. If you prefer casual flirtation, you'd be more at home on one of the less raunchy networks. SexTex provides a forum for those whose tastes are for explicit dialogue and uninhibited material.

SexTex isn't for everybody; but they aren't trying to be!

In conclusion, the aims of CompuServe's Human Sexuality SIG and CVC's SexTex are quite different. It's difficult and possibly misleading to compare the two services. They are obviously appealing to contrasting audiences — one cerebral and one glandular — and are trying to serve two separate purposes. Their only common denominator is that they are both telecommunications networks that deal with the subject of sex.

■

Leather Goddesses of Phobos: Tries to Be Naughty AND Nice

by Bob Lindstrom

'Twas the night before Monday and out of the gloom, a green phosphor glowed in the Commodore room.

The parents were huddled in front of the screen enjoying adventures that verged on obscene.

With Ma wearing little and me wearing less, we sleazed up the place with a Martian goddess.

Remember Softporn Adventure? It was a smarmy little effort available once upon a nasty time from Sierra On-line. In those unenlightened days, computing was regarded as the domain of manly (nerdy) men. Sexist? What's that? We didn't know.

So, we didn't care that the despicable goal of this Softporn text adventure was to seduce three women before the night was over. We just got to work typing all the naughty words that this program miraculously knew and let guilty perspiration drip all over the pens in our shirt pocket protectors.

There was some retribution, I suppose. At one point, making the wrong move in Softporn meant contracting a social disease. And, then, it was possible to lose all your money (and therefore any chance of "getting lucky") by gambling it away in a casino. At least Softporn made it clear that sexual arrogance wasn't easy. Debauchery had its price. $29.95 . . . as I recall.

But that was back when the (computing) world was young, young and randy. Eventually, civilization came to those nerdy backrooms where grease-headed hackers slicked the steam off their horn-rims and smirked over two-

Put on cellophane glasses and the thrills of 3-D reading are "Comin' At Ya" in Leather Goddesses comic book.

frame animations of the old in-and-out. Yes, there was the occasional Strip Poker or Piccolo Mouso; but they were enjoyed mainly by high school kids who looked, chuckled and then went on to some healthy activity like football or hiking or skateboard riding.

It looked as if the days of the skinny, sleazy nerd were nothing more than dim, affectionate, oily memories from the past.

Infocom Sleazes to the Rescue

But, for a brief moment at the Summer Consumer Electronics Show, held last June in Chicago, it seemed as if those dead, dastardly days were returning. Infocom announced Steve Meretzky's newest text adventure, Leather Goddesses of Phobos ($34.95 for C-64/128, $39.95 for Amiga), and those "wacky guys" of Infocom suggested that the text adventure would be as kinky as its name implied.

They described the new game to a roomful of journalists, many of them charter members of the Leering Nerd Club (who are hiding their heartfelt nerdism behind flannel suits and styled hair): Kidnapped by raunchy galactic Amazons. Subjected to bizarre sexual experiments. Making love to the wife of a Sultan. Seduction, titillation, erotic romp, sex — as the sales pitch unfolded, elbows poked ribs throughout the room. Hint-hint. Nudge-nudge. This sounds good — heh, heh.

The humidity in the room rose noticeably.

Infocom also announced some other titles at that press conference. Did anyone remember what they were? As the journalists left Chicago's Field Museum of Natural History, one thought was paramount: "I can't wait to get my hands on those Leather Goddesses."

Here Come the Goddesses

Two months later, the Leather Goddesses of Phobos finally arrived. Tucked in with the floppy disk was a pair of red-green glasses and a 3-D comic book. Hoo boy, the mind jiggled with thoughts of seeing those appendages "Comin' Atcha" right off the page.

Oh no! I can't believe it! A Scratch 'n' Sniff card — ho, ho, ho. Would they dare? Olfactory science comes to the aid of sleazoid amusement.

"Hey, honey, don't you have to go to the store for something?" Best to launch this thing when no one else is in the house. It could go completely out of control! Nyuck, nyuck. Anyway, who wants someone to walk in on them while they're wearing those furshlugginer 3-D glasses? Titillation *and* humiliation, who needs that combination? Well . . . at least no one *I* know.

The car pulled out of the driveway. Great. Put on those 3-D glasses. "The Adventures of Lane Mastodon." Hubba hubba. Look at that comic book babe. Reminds me of Wallace Wood's outer space vixens in EC's Weird Fantasy comics. Gee, the stuff that popped out of the page wasn't the stuff I expected to pop. Makes no difference. It was a pretty funny takeoff on old comics from the '50's and movie serials from the 1930's.

It was also a portent of purity to come.

After the red-green eyeball blasting of the comic, Infocom's inevitable how-to-play followed . . . not in 3-D.

What does this say? Male and female versions? The world has changed since Softporn. Ok, this is an enlightened society. Share the lust. In fact, it's kind of nice that ladies can also enjoy the fantasies of Leather Goddesses by seducing the Sultaness' husband (while we manly men spend a sordid hour with the Sultan's wife).

Now just wait one deranged minute. Three levels? Tame, Suggestive and Lewd. TAME? Hmmm. Sounds unlikely for those of us with cheeseball tastes; but you've got to hand it to Infocom for not excluding the PTA market. In the Tame mode, you just sit and talk to the Sultan's wife (or Sultaness' husband) about the intelligence of beavers or new uses of electricity. And when you're ready for something a trifle more raw, type Suggestive or Lewd and it's off to PG or R-rated territory.

Enough of library science. It's time to stop reading and time to start breeding. Yowser. Here come the Leather Goddesses of Phobos!

The Adventure Begins

"The place: Upper Sandusky, Ohio. The time: 1936. The beer: at a nickel a mug, you don't ask for brand names. All you know is that your fifth one tasted as bad as the first." Steve Meretzky, what a guy. Only the second screen and he's got one of the classic openings to a text adventure.

The action fired up quickly. I'm waiting at the bar, downing a frothy elixir. Suddenly, each one of my kidneys started screaming, "Me first." I headed off to the Mens' Room. Ladies have their own room and that's how the game sneakily figures out your sex.

I passed through the swinging door and staggered into a Disneyland for roaches. It looked like the last time this swamp with tiles was cleaned was on the day they elected Wilson to the presidency. And just when I thought it was safe to go in the water, the program told me to whiff the first circle on the Scratch 'n' Sniff card. Hooo boy. In here? You sure? Gulp.

Eventually, survival set in. But shortly after braving Scratch

'n' Sniff No. 1, tentacled aliens kidnapped me to Phobos where I was celled up as an unwilling subject of sexual experimentation by the infamous Leather Goddesses themselves. Escape was easy. The challenge was finding all the little doo-dads that would help me build a machine to defeat the goddesses' impending invasion of Planet Earth.

And if Earth was captured, who knows what might happen? Those interstellar concubines might even replace all the convenience stores with a chain of Park 'n' Rub massage parlors. How dare they take away our inalienable right to buy beer on the run? Why you . . . I'll show 'em.

So I eluded their depraved experiment (which even the Lewd version only hints at) and chuckled at a couple of Meretzky's clever gags.

But where's the S*X?

An alien wandered through to tell me that his sister had huge ones. Whatever that might mean on an alien.

But where's the S*X?

OK, I got to the Sultan, answered his riddle and FOUND THE S*X in an hour-long "wrestling" match with one of his wives. Sure liked her flying drop kick. But even the description of the sex was pretty tame. I started to wonder if my wife might have picked up some taco chips at the store.

Taco chips? Good lord, man, you're thinking of taco chips at a time like this? You're playing what was supposed to be the first "adult" adventure game from the best publisher of text adventures. And you're wondering about taco chip?

I hope she gets nacho cheese or taco flavored. I like those better than the plain ones.

Oh no, what am I saying? Taco chips instead of sleaze? Could it be a sign of old age? Or is it possible that Leather Goddesses isn't quite as kinky as the name implies?

The taco chips finally arrived and with my reason restored by the aroma of chili powder (better than Smelling Salts), I had to admit to myself that Leather Goddesses wasn't a Softporn for the late '80's. It was an amusing, sometimes silly, take-off on movie serials a la Flash Gordon and Buck Rogers; there was an episode of nudgey-nudgey gags from time to time; but, aside from some light blue humor, Leather Goddesses was very much a mainstream text adventure.

Even the goals and puzzles were typical: Find the objects; Use them correctly; Defeat the Goddesses. As adventure games go, it was a solid Infocom product but not as wildly inventive as Meretzky's wit in The Hitchiker's Guide to the Galaxy.

And in the course of the game you had to go to Cleveland. All right, at least *that* counts as S&M.

I put away my sweat band — wasn't needed — reduced my raunchy expectations and continued the game, savoring Meretzky's clever writing. I gave up the hope of seeing something that would help me relive my youthful days of narrowed eyelids and sniggering laughter.

The Leather Goddesses of Phobos. Great for a laugh; but only good for a leer.

■

COMPUTER WIDOW:

The War Between Men and Women — And Computers

by Lyn Chase

The world's oldest pasttime has been computerized.

The beige brute has become mobile — sprouted wheels — and entered the bedrooms of innocent computer widows to usurp what little remaining power we had over our husbands.

Until recently, hackers occasionally would notice that their bodies were more than hands for the keyboard and eyes for the screen. They would feel rumblings in their stomachs and reach for a pizza. They would notice a dry mouth and pry their fingers off the keyboard to get another beer. They would, at times, even concede that a trip to the potty was necessary.

But there was one more thing — a feeling, a thought, a need — that computer widows everywhere counted on. The need of the hacker to reproduce — or to practice doing so. It was the time that computer widows could plan on to renew the relationship with hubby; to catch him up on domestic news; to explain that the reason Junior hasn't been bugging him for his allowance is because Junior has grown up, graduated from college and has a wife and two children. It was a time for a computer widow to become a wife and for a hacker to remember why some movies are rated X.

The invasion of the computer into the bedroom came upon us subtly, insidiously.

First, there was strip poker for the computer. The "boys" could giggle like teenagers — many of them were teenagers — as they watched the lady on the screen disrobe. Lest I be accused of sexism at this point, I must emphasize that the first strip poker game disk contained only pictures of women. It was later that a disk became available for those who preferred to view the male gender in a state of undress.

Not long after computerized strip poker came into being, disks of digitized and Doodle-ized nudie pictures appeared, advertised by "innovative" software houses.

The scourge had begun.

What feminine wiles do we now have left to compete with the randy stimulation of Leather Goddesses of Phobos? What distractions can we offer to compete with CompuSex? (For those of you who, like me, are not well-versed in such phrases, CompuSex is newspeak for computer-to-computer sexual relationships.)

The phrase, "Let's Get Physical" hardly moves our keyboard-crazed partners, so Let's Get Medical. Perhaps the key to out-alluring the computer lies in the twelve cranial nerves.

I was a nurse before I was a computer widow, so I began browsing through my old anatomy textbook in search of strategy. Like an acupuncturist in search of a cure, I went from page to page in search of the miracle pressure points that I could play upon to distract hubby from the flickering screen.

I found, staring me in the optic nerve, a list of the twelve cranial nerves, the nerves that control everything on the face.

This information can serve the computer widow well because the computer can stimulate only a few of these nerves. We computer widows can focus on the rest.

Take, for example, cranial nerve I, the olfactory nerve. This is the nerve that allows hackers to smell scents. Does a computer have a scent? No! But you do!

With the help of Chanel Number Five, or maybe a little chicken soup, we can compete with the computer starting at cranial nerve I. How's that for a good start?

Nerve II is the optic nerve. It controls vision. OK, computers offer lots of visual stimulation; but you *can* compete. Check your phone book to see if there is a Fredericks' of Hollywood in *your* area.

Nerve V (Trigeminal) involves such things as the sensations of the skin of the face, the mouth, the tongue and the teeth. As nearly as I can tell, the only way a computer could stimulate cranial nerve V is if someone bit it. But you have a cranial nerve V too. Put it to work for you. Mingle your nerve V with hubby's nerve V and see if the computer can compete.

Then, there is cranial nerve VII, the facial nerve. This controls facial expressions, tears and saliva. To see who has the upper hand on this one — you or the computer — pass a freshly cut onion or lemon under Mr. Household Hacker's nose while he's perched in front of his machine. Even if you don't see the tears or notice the gulping, you'll certainly make his facial expression change. Any feedback is good feedback.

Perhaps a subtler way of challenging the computer on nerve VII would be to serve pork in hot garlic sauce (see your local Chinese restaurant for a take-out order) and serve it in a red and black lace teddy.

Don't forget cranial nerve VIII, the Vestibulocochlear. (Say it aloud.) This supports equilibrium and hearing. To challenge the computer on this one, just whisper that you've made arrangements for a babysitter so that the two of you can "tour" the hot tub and waterbed motel down the street. Reveal a chilled bottle of champagne and mention that the sitter should be there any minute. Use a stopwatch to see how long it takes for the screen to go blank.

Nerves IX through XII include a vast array of motor and sensory functions. They monitor control of the tongue, the muscles that turn the head from side to side, receptors that regulate blood pressure and carbon dioxide concentration. Surely you can use your imagination here.

Computers may have invaded the most private parts of relationships between lovers, but we do not have to take this invasion, uh, lying down!

As Dr. Leary put it last month, "the ultimate organ for pleasure . . . is the mind." And remember, no matter how hermetically computerized your in-home hacker seems, computer widows and hackers alike have twelve cranial nerves.

Now go chill that bottle of champagne.

■

Intracourse: Intimate Analysis And Sexual Compatibility

by Randy Chase

Have you ever wondered how your sexual behavior and preferences compared to "normal" (as defined by statistical averages) but you're too bashful to ask? Or perhaps you've been wondering just how compatible you are with your significant other?

Maybe you've just been waiting for a reason to gather all of your friends together and take turns getting embarrassed by answering very personal questions about the details of your sexual tastes and peculiarities?

If you've answered "Yes" to ıny of the above, then In-ıraCourse may strike your fancy. :t offers thought-provoking ques-ions, explores in some detail sex-ıal attitudes and practices, and is he most explicit software explor-ng sexual behavior.

Whether a software product :an provide truly helpful psychological analysis remains to be proved. But IntraCourse claims only to be an entertaining package guaranteed to stimulate thought and, on that premise, it is an intriguing, ambitious program.

IntraCourse, which publisher IntraCorp Inc. intends to retitle as

InterAction, offers to "Let the computer unlock your sexuality!" This entry into the sexual software derby, demands attention for a variety of reasons. Dr. Joyce Brothers' endorsement and certification gives the product a certain amount of media sensation even though she wasn't involved in the design of the product. The credit for development goes to IntraCorp President Leigh Rothschild and a team of fourteen psychologists, programmers and graphic artists.

In format and execution IntraCourse is similar to Mind Prober. It's a menu-driven set of multiple-choice questions (about 100 questions on the IBM and 67 in the Commodore 64 version) that are, at times, very personal, focusing on intimate details of sexual behavior. However, the approach is strictly clinical in nature.

From the answers to the questions, IntraCourse creates a sexual profile of the subject, and then displays on the screen or printer a detailed analysis of that profile. The several pages of the analysis may not be a serious psychoanalytical tool; but it certainly can give the user some food for thought.

The true value in this program may be the very act of answering the questions. Many of them will prompt self-reflection as the user considers the choices offered. The exploration of attitudes and preferences and the subsequent chain reaction of thoughts is probably the most revealing and analytical aspect of computerized pop psychology.

There are some telling differences between the IBM and Commodore versions.

The Commodore version (which fills four disks) covers the most pertinent questions used in creating a profile. The IBM version contains a much more detailed (and explicit) examination of one's personal sexual preferences.

A large number of questions are used to determine basic personality traits (aggressiveness, sensitivity, confidence, etc.). Others concern themselves with specifics of sexual preference and technique. In the CBM version, there just wasn't room on the disks for many of the sexual specifics asked in the IBM version. IntraCorp reports that a forthcoming Amiga version will contain the full set of questions available for the IBM.

It should also be noted that the questions vary depending on your answers. The first determination in the set of questions you'll answer is your sex. Men and women are prompted with different questions. Depending on your answers regarding sexual practices and preferences, the user may be branched off into subsets of questions.

Once a sexual profile is created, it is possible to compare that profile against national statistical averages. On request, for instance, the program will graph the range of responses given to the analysis questions.

One profile can be compared to other profiles on the disk with a resulting printout of compatibility, complete with advice on potential problems and even some recommendations on preventing them. As with the personal analysis, these results should kept in perspective. The purpose is not to make profound psychological revelations, but to promote thought and discussion, and make the user examine their own attitudes and behavior.

IntraCorp suggests that IntraCourse can be used as party entertainment. I guess that depends on how close you are to your friends, how close you want to get to your friends, and what kind of parties you have.

I personally don't think that IntraCourse is going to become a party classic. Not many people are willing to sip cocktails and answer questions about their masturbation techniques.

Be warned. A friend who makes her living promoting software to retailers told me that she was too embarrassed to demo the IBM package. During her first demonstration, a question was asked about candles, cucumbers and covert activities.

Another factor to keep in mind is that when questions like this become a social activity, reality and truth usually start fading rapidly into the background, a development that compromises the effectiveness of the program.

And testing the compatibility of a group of people could produce some awkward and embarrassing results. What do you tell the missus when IntraCourse suggests that you'd be much more compatible with your best friend's wife?

Still, I guess the party value depends on your sense of humor and just how comfortable everyone is with candid discussion of some very intimate matters. The Commodore version, more limited than the IBM version in its delicate personal questions, might be best suited to social situations.

A dictionary of sexual terms is also included in the system for those who may be unfamilar with some of the words.

Questionnaire answers can be protected with personal passwords, preventing others from exploring your answers or from running unauthorized compatibility tests.

While I'm not convinced that IntraCourse lives up to the promise of "unlocking your sexuality" (that *is* a pretty tall order for a set of floppy disks!), it does deliver entertaining information that will provide reason to examine your own sexuality. It can also prompt an enlightening exchange of ideas and intimacy with the significant other in your life.

■

Strip Poker: Betting, Bluffing and Other Cheap Thrills

by Randy Chase

How many of you have played strip poker? How many of you wish you had, but never had the opportunity? I'll bet we got a lot more positive answers to the second question than the first, right?

The first program of a "sexy" nature available for the Commodore was Artworx's Strip Poker. Since its release almost four years ago, it has earned its niche as a classic. Few entertainment titles from those early days of the Commodore are still found on retail shelves. But the appeal of being the only sex-related title during those interim years has definitely contributed to Strip Poker's longevity.

Pandering to that age-old (and predominantly male) fantasy of the poker game with everyone's clothes at stake, Strip Poker offers the gamer a chance to challenge the computer to a *friendly* game of five card draw.

You all know the scenario. You find some voluptuous (or handsome) opponent. The hard part has always been finding someone who was willing. Strip Poker solved that program with a disk of digitized lovelies and hunks and a computerized deck of cards.

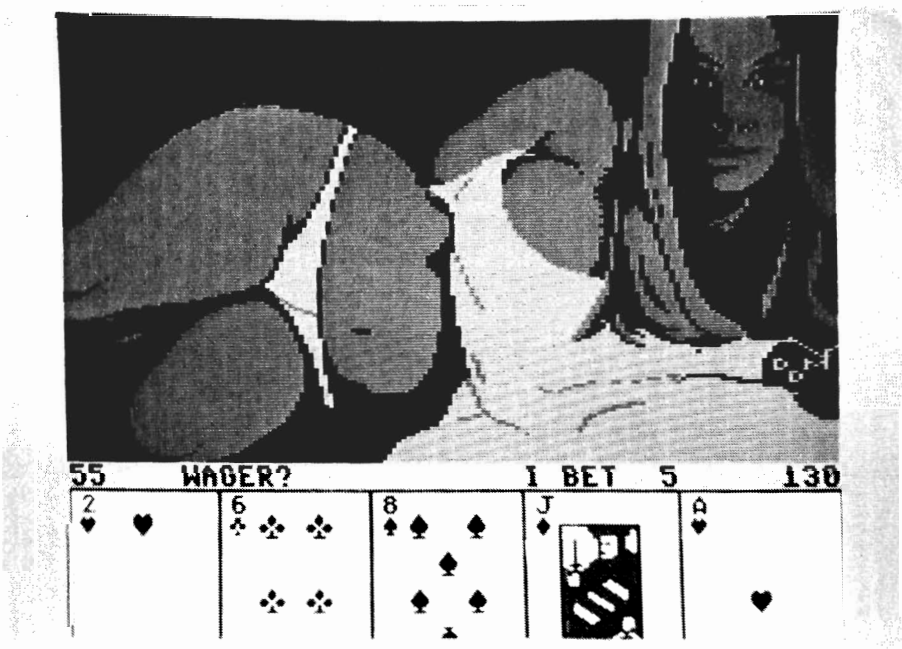
One Strip Poker advantage for the bashful fantasizer is the safety of not having to take off your clothes when you lose. Unless it's a hot August night and the computer room is stuffy, or you just prefer to add an extra element of realism to your gaming.

The program disk contains two female opponents, Suzi and Melissa. A second data disk followed offering Candi and Marlena for your gaming (or gamey) pleasure. Subsequent disks offered titillation for the ladies — Tony and David — and another pair of distaff card sharks — Dominique and Lindsay.

Anyone who has ever played a hand or two of poker or is willing to try can play Strip Poker and win. It's a straightforward poker game, with the twist of your opponent losing an article of clothing for every $100 she/he loses during the game. The computer plays well enough to be interesting; but badly enough so that even a poker newcomer won't have that much trouble clearing the table, so to speak.

Play value is sustained by the challenge of new opponents and by personality traits that affect the playing strategies opponents employ. Some may bluff more than others, and likewise some will be more susceptible to your bluffs.

The graphics are quite good, especially considering how long ago this program was released. With the constantly changing nature of software sophistication



Candi bets five.

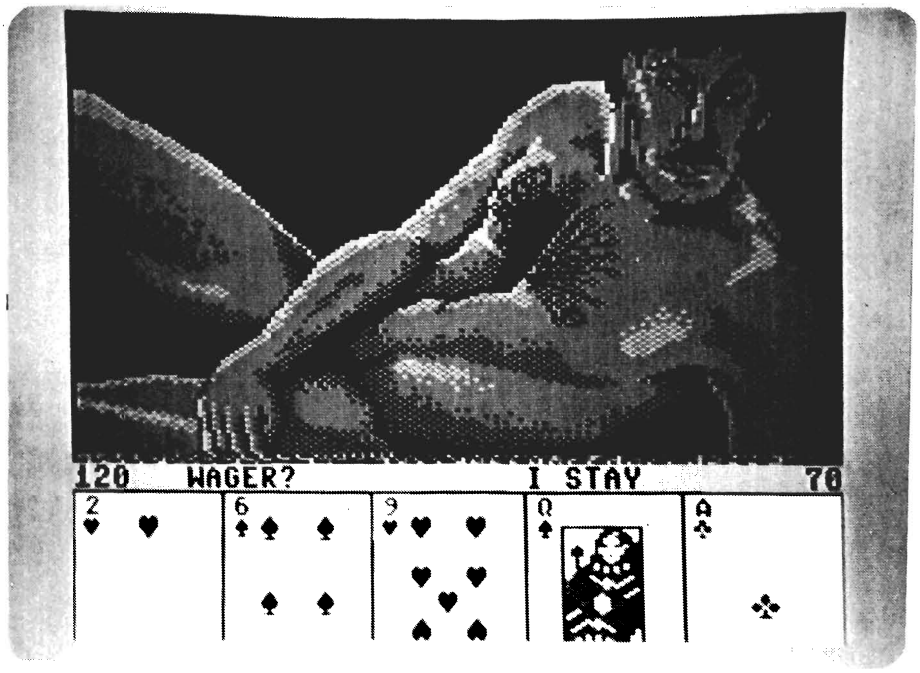
not many programs this old would even warrant mention, much less continued popularity.

Artworx promises an Amiga version of Strip Poker in the next few weeks. The graphics of the Amiga renew interest in anteing-up and trying your hand.

The next evolutionary step will one day be a fully animated opponent on the Amiga. Let's stop right now and imagine the myriad possibilities there . . .

But there is a short-cut for those of you with little patience or persistence, those who just can't win at cards no matter how hard they try, or those just in a hurry. The files for the various opponents are stored in named and numbered files. For instance, Suzi1 is fully clothed, Suzi5 disrobed, and the files in-between represent the transitional stages from bluff to buff.

If you really can't wait, you can use a disk utility such as Disk Doctor to exchange the names of the first and last file in the sequence. This will result in the opponent initially appearing in the unfettered condition that you would normally be rewarded with at the end of the game. If you get bored with the traditional game, I guess you could completely reverse the files and attempt to dress your opponent. It's the old "Boy wouldn't she look great in a tight sweater" syndrome.

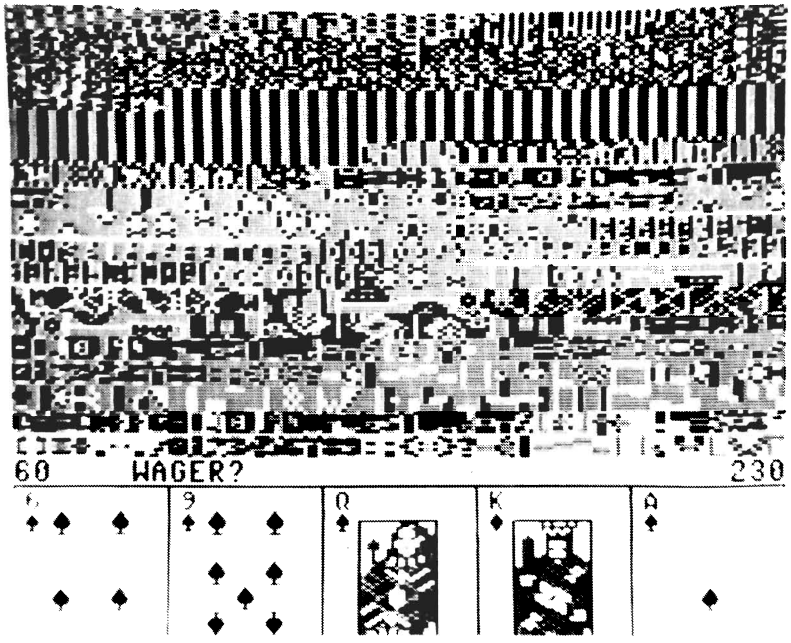


Play your hand well and Tony will move his.

I caution you to be careful when experimenting with a commercial disk. Altering files will, in all likelihood, void the warranty. Proceed only at your own risk and, if possible, conduct your exploratory surgery on a back-up copy.

As to the final question, is this a good electronic substitute for the real thing? Not having anything *real* to compare it to, I'll have to defer that answer to readers with first-hand experience. However, if anyone is interested in conducting clinical research into the matter, I can be reached at the office most days (or at least those days when I'm not too preoccupied with all of these "sexy" software programs).

■



Kids entering the room? Hit F1 key and Strip Poker scrambles itself. They'll never know.

COMPUTER CURMUDGEON:

Computers and Sex: The Last Word

by Mindy Skelton

When *The Guide* decided to do a special issue on computers and sex, I was taken aback.

Computers and sex?

This took some thinking.

In homes across this mighty nation there are men and women accusing their significant others of using a computer to *AVOID* sex. Could this be what *The Guide* wanted me to talk about?

Computers and sex?

Was this, in fact, a topic that I — refined, cultured person that I am — could or should discuss in public? And if I could, would anyone care? Is electronic erotica a thing best left behind closed doors? Isn't it best left to consenting computoids and their machines?

After much thought, I realized *The Guide* had once again risen to the occasion. Who better to tastefully deal with computers and sex than level-headed, unopinionated, tasteful ME?

Computers Reach Puberty

In most areas of our lives, sexual pervasiveness is commonplace; but not in the realm of computers. Here, the intrusion of sex into the formerly pristine world of bits and bytes is causing, at the very least, minor ripples of sensation, nay, even sensationalism.

If we look at the early days of computerdom, we find a bastion of male exclusivity. Please don't write in and tell me there were women there, too. I *know* there were. But the presence of a VERY FEW women does not change the general tenor of the times.

These men were not building sexy machines. They were building hard-core, room-sized computers. Throw those switches, grit your teeth, dig into those ones and zeros, boys. They were Real Men who programmed by the seat of their pants, and whose romantic urges, if any, revolved around finding a more elegant piece of code.

From these early beginnings we moved on to the inventors of the personal computer. These men loved their room-sized mainframes with a pure, lofty love; so much so that they called them when they went away on vacation, and dreamed of ways to take them home, and get personal.

It was from these men that the unromantic hero of the age was born: the hacker. The fledgling hacker was pre-pubescent and often asexual. At an age when other boys were sneaking covert glances at prurient magazines and wondering when and how they could test out their fantasies, young hackers were hoisting their pirate flags and fantasizing violating the computers in the Pentagon.

". . . I put away my sweatband . . . reduced my raunchy expectations and continued the game, savoring Meretzky's clever writing . . ."

All Grown Up and Nowhere to Go

And what happened when adolescence and puberty arrived?

What sort of sexual aura wafted around a man who sat glued to a computer 34 hours a day, eating cold chinese food out of grease-stained containers, or munching day-old pizza?

Here we had a man who slept draped across his terminal or, at best, on a couch in the nearby lounge; wearing the same clothes

day after day, developing his own peculiar aroma, with a pallid skin color any southern belle might have envied (and achieved without aid of parasol or lemon juice).

This is not a man to give Errol Flynn many sleepless nights, no matter how sophisticated his program is.

#For these men, computers were all. Little wonder that computerized sex found its way into these computerized lives.

Just Me and My Commodore

The love affair of man and his machines is nothing new. Man has always been fascinated by his own creations. Cars, boats and planes have been lovingly christened with female names, described in sensual terms and always referred to as "she".

Not so with computers. Hackers almost invariably refer to their electronic darlings as "he." Not too conducive to romance (I suppose *some* may argue with that).

So how *has* sex crept into this un-sexy world of microchips? Gradually. Gradually, and in sometimes unexpected ways.

But crept in it has, and it is now firmly entrenched in many forms from mildest flirtation and titillation to full-scale rut. Let me elaborate.

Logon Love

For those five or six of you who haven't heard, compusex is alive and well on-line. The nation's computer bulletin boards serve not only as message bases and information exchanges, but also as the largest singles bars in the world. From small-scale, home-grown BBS's to the megalithic national bases like CompuServe and onward and upward to networks devoted entirely to the fine art of seduction — it's all there for the asking: flirtation, sweet romance, and down-and-dirty debauchery.

All life styles are acceptable somewhere on-line. No matter what you want, there is someone else out there who wants it too. And since you never actually see your partner, everyone on line is always beautiful or handsome. (Ah! The wonders of the imagination!) Your erotic flights are limited only by your mutual creativity and typing ability.

You can try things here you would never do in real life — whether from shyness or lack of physical flexibility — and, if you are easily embarrassed, you can do it all under an assumed name or persona.

There is no danger of any of those nasty diseases you've been warned about; and, for most folks, there is no danger of an actual involvement which might threaten marriages or relationships.

Trouble Undercover

But, before you dim the lights in your computer room or slip into something more comfortable, let me warn you, all is not idyllic. Since you never see your partner, there is always the chance that your loved one is a bit of a trickster and may be stretching the truth.

For example, your Prince Charming may turn out to be a Princess Charming. Your electronic lover may be a very advanced 12-year-old. Or your intimate little soiree for two may, in fact, be the evening's entertainment for an entire college fraternity on the other end of the line.

And lest we underestimate the power of imagination, don't scoff at the possibility of a powerful attraction, even obsession, growing out of this ephemeral encounter. Longterm relationships have crumbled under the electronic onslaught of an unknown lover.

Long distance encounters of the modem kind have multiplied with the advent of the on-line BBS. Whether such essentially solitary love-making proves to be one of the computer's gifts to modern life remains to be seen.

Sex Play

On a less surprising note, sex has begun to be evident in computer games.

Infocom (that long-time friend of the imagination) has introduced the first X-rated adventure game to gain national advertising and distribution.

Even on the Lewd level, Leather Goddesses of Phobos mixes sex and humor so delightfully that few should be shocked. (There are ample warnings to get out while the getting is good for those who might take offense.)

You'd have to look a long time before you found more tasteful "smut".

Interlude (for Apple computers) is yet another game which melds computers and sex. It offers participants a series of questions about their mood and sexual preferences. After comparing the answers, the computer searches its data banks to come up with one or more appropriate scenarios (interludes).

At this point, the participants are expected to turn off the computer and use the computer-generated interlude as the script for the evening's (or weekend's?) activities. Let your fingers do the "walking", let your computer do the fantasizing.

So there we are. I don't pretend to have covered (or uncovered) everything; but maybe I've given you a few seeds for thought. Frankly, I'm still sorting it all out myself.

For good or ill, sex has made its first inroads into the world of computers. If the rest of the modern world is any guide, we haven't seen the last of it.

■

Bobsterm Pro Steps Up to 128

by Bob Lindstrom

The Catch-22 of telecommunications programs: Make the program easy to use or make it useful. In the labyrinthine world of telecommunications, a modem program tends to be stripped down to a level understandable to the average user or full-featured enough to handle all telecom problems, and confuse most users.

The middle-ground between these extremes is a tiny piece of unreal estate. The EasyTerms, SimpleTerms, and KnuckleheadTerms take hand-holding to the point of hand-tying.

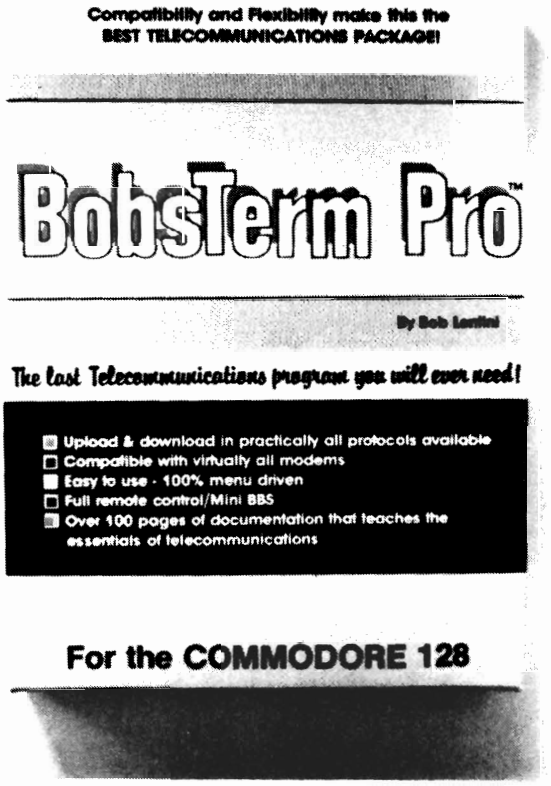
On the other end of the line are programs that grit their teeth and throw you a ">" prompt with no additional explanation. How to use it? Read the 278-page manual, Smart Guy.

But we are now paper-and-ink networked together to examine a program that balances neatly between both worlds. BobsTerm Pro 128 can get the most confused newcomer online in short order; yet it will follow an experienced telecommunicator every exotic, arcane step of his way.

Full-featured on the 128

BobsTerm on the C-64 has established a reputation as one of the most flexible and able terminal programs around. BobsTerm Pro on the 128 translates that excellence to the increased power of that machine, giving access to the 128's increased RAM, 80-column screen and other nifty features.

The program is designed to support most modems commonly in use among Commodore owners: the Commodore 1670, 1650 and 1660 (with an appendix in the manual explaining how to fix Commodore's oversights so the ruddy thing will work. Sigh.); the Westridge modem; Master Modem; Mitey-Mo modem; HES I and II modems; Total Telecom modem; and the Hayes Smartmodem and Hayes-compatible modems.



Common terminal features — DOS commands, autodial, and the like — are all here. But at that point BobsTerm is just warming up. The program gets into gear when it comes to high-powered features like macros and a wide range of file transfer options.

Standard file transfer protocols incorporated in BobsTerm include straight ASCII and binary transfers (just spooling it out through the phone line), SEQuential file transfer with limited handshaking, XON/XOFF with definable handshaking characters, Punter protocol, X-modem protocol (two choices of Cyclic Redundancy Checksums — CRC), and an entire disk transfer (set that one up in 300 baud and then go out to dinner!).

Clean Screen

Boot up BobsTerm and you immediately realize that this program was built for efficiency. The main menu offers clear-cut access to program options. In terminal mode, a command bar above the screen keeps the user informed at a glance of the baud rate, ASCII-PETSCII conversion, on- or off-hook and many other fundamental (and not so fundamental) features.

All of the features of BobsTerm can be used through menus. When the RUN/STOP key is hit, the main menu appears in an on-screen window. From that point, users can move through the interlocking menus to change transmission parameters, transmission protocols, buffer contents or even screen colors and font styles. If you find yourself in a blind alley, hitting RUN/STOP will back through the menus one at a time. No matter how far you get into the depths of BobsTerm Pro, you can easily turn around and get out again.

Once a user grows familiar with the functions of BobsTerm, the menu structure can be bypassed with key commands entered in terminal mode. All uploading and downloading; buffer filling, editing and clearing; and other functions can be initiated by a single keystroke. Beginners who start out using the menus are not going to advance to a state of experienced impatience with BobsTerm. They can just move on to the shorthand of key commands.

". . . Common terminal features . . . are all here. But at that point BobsTerm Pro 128 is just warming up. . . ."

". . . A feature that I particularly prize is the ability to edit the contents of the buffer either before or after a DL/UL . . ."

Buffer Bonanza

Among the advantages in bringing BobsTerm to the 128 is a hefty 60K memory buffer. A sizeable buffer eases life's strains considerably when transferring large files over long distance lines. Load the file into the buffer and upload directly from the buffer, thereby eliminating disk access during the transfer. Cutting out the disk "middle-man" saves time. And when you're calling long distance, time is money.

The buffer may be filled either from a disk file, or from the disk beginning at a specific byte number. Users can also type directly into the buffer from the keyboard.

The buffer will accommodate SEQuential and PRoGram files and BobsTerm has several conversion routines available in the buffer mode to deal with file type incompatibility problems. For instance, a BASIC program can automatically be converted into a SEQuential listing as it is being transferred from disk to buffer or back into a PRoGram file as it is saved back to disk.

BobsTerm will convert binary programs into ASCII-IMAGE programs, representing special binary characters in a form that can be transmitted and then translated back into binary code on the other end of the line.

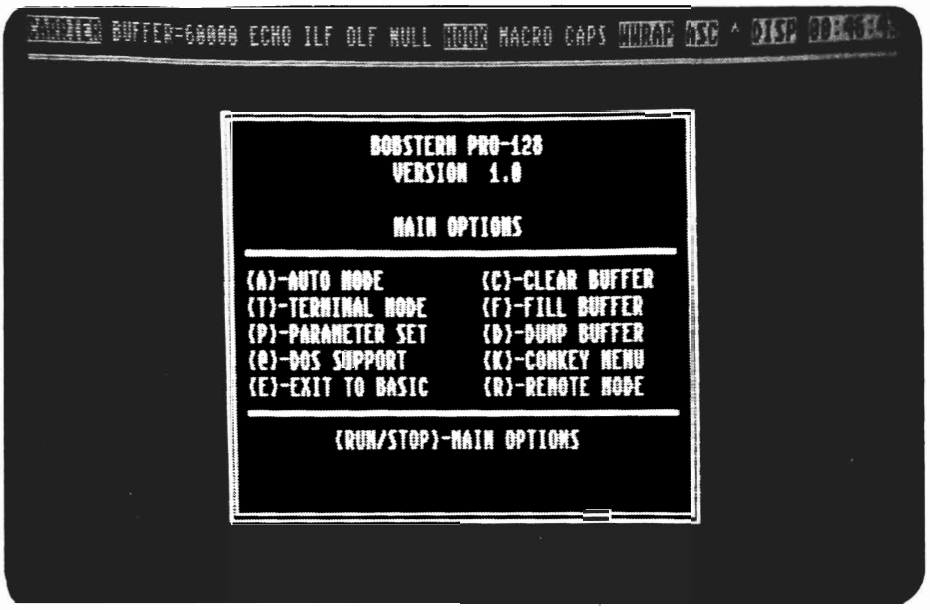
And, if you wish, BobsTerm will strip all source code comments out of a file, a convenient way to reduce file size and, therefore, transmission times. The user can tell BobsTerm to strip away all characters after a user-defined character in a SEQuential file.

Cure the CP/M Blues

Those who use the CP/M mode of their 128, and have grap-

pled with various sluggish routines that convert CP/M disk formats to CBM disk format, will be pleased by BobsTerm's ability to read and write data directly to and from CP/M double-sided disks (text or data).

A feature that I particularly prize is the ability to edit the contents of the buffer either before or after a DL/UL operation. It often happens that I discover some error while transmitting a product review to a database service. With BobsTerm, it is a simple matter to get into the buffer and change the mistake before transmitting the file. BobsTerm allows text formatting, conversion from ASCII to PETSCII and back, entry of hexidecimal and decimal values among its text and program-editing features.



Command menus allow access to wealth of telecommunications features in Bobsterm Pro.

File Transfer Nitty-Gritty

I've already mentioned the file transmission protocols supported by BobsTerm; but here's one example of how BobsTerm lets you get into the nitty-gritty of transmission.

One database service I deal with requires that I spool ASCII text files to their mainframe system. Though I was transmitting at 1200 baud, one popular public domain 128 terminal program placed such a delay time between each character that file transfer was taking place at much less than the maximum 1200 baud rate.

With BobsTerm, I not only had the advantage of uploading directly from the buffer, it also allowed me to shorten the delay between characters, which resulted in transmission times nearly twice as fast as with the Public Domain terminal program . . . and with no increase in transmission errors.

". . . allowed me to shorten the delay between characters, which resulted in transmission times nearly twice as fast . . . with no increase in transmission errors . . ."

Autodialing and Macros

For regularly used numbers, BobsTerm users can set up a telephone directory that will dial and redial one number or a sequence of numbers with a few keystrokes.

For numbers not included in the directory, there is a DIAL option. Enter the number you want to dial and the program will fill in the autodial codes expected by your modem. Or you can send commands to your modem, such as the AT commands of Hayes-compatibles, directly from terminal mode.

The macros of BobsTerm, which could have been one of the strongest features, are unfortunately one of the less convenient.

Macros are script files that take command of a program and execute a number of operations without user control. For instance, a macro could be written that would dial up CompuServe, connect with CIS, enter the account number, the password, go to the Commodore forum, download all the new messages, save them to disk and log off the system . . . all at a time specified by the built-in BobsTerm clock!

In terminal programs for other computers, macros can be created on-line by putting the program into a RECORD mode. While you log onto a system, the

computer is monitoring and remembering the on-going and incoming characters. After you've run through the desired operation, tell the computer to remember the entire sequence and as if by magic, you have an automatic macro file.

If only BobsTerm had this feature. Nope, in BobsTerm you have to laboriously hand-program the macro, learning the BobsTerm macro commands and fashioning them into a script file that will accomplish your task.

As an example, saving a macro that will save a buffer to disk looks like this:

D * D name [Control]M * 1
[Control]M * [Control]R

Hmmm? Even though the manual is quite clear on the subject of writing macros, the complexity of the process is going to scare a lot of BobsTerm users away from the remarkable power of this feature. Perhaps a future update could include a more convenient way of creating macros for autodialing and logging on to database and BBS services.

". . . this program also lets you plunge into the most esoteric parameters of telecommunications . . ."

Go Ahead If You Dare

Aside from the utility and convenience of the features mentioned above (and that only scratches the surface of BobsTerm), this program also lets you plunge into the most esoteric parameters of telecommunications.

As well as setting baud rate, duplex, parity, stop bits and all the relatively familiar aspects of RS-232 protocol, the sophisticated user can adjust the baud-rate timer high-byte and lo-byte to improve transmission reliability (or just to squeeze a little more speed out of the system).

For addressing various modems, BobsTerm will change the carrier phase and carrier time wait. You can change the make-time in milliseconds to compensate for problems in tone dialing and tweak the digit-time between pulses of a pulse-dial system.

For transmission accuracy, you can alter the character delay time between characters, adjust the timeout period of X-modem, choose the method for calculating CRC, even specify the handshaking characters in X-modem.

For the uninitiated telecommunicator (which includes most of us), all of this sound daunting, even horrifying. But, don't worry, chances are good that you'll never have to use these options. The default values of BobsTerm are suitable for almost all situations. However, it's nice to know you can climb in an tinker around when the going gets rough.

Terminal Emulation

In some cases, Commodore users will find themselves wanting to communicate with mainframe computers at school or at work. For those occasions, it is handy to have a ready-made set of communications parameters available that can be understood by the big guy on the other end.

Toward that end, BobsTerm includes emulation of three standard mainframe terminals: ADM-31 (similar to most CP/M system), VT-52 and VT-100. Typically for BobsTerm, it is also possible to use a USER terminal emulation option in which you can get in there and handcraft your own terminal emulator.

I was able to test only the VT-100 mode of BobsTerm and can attest to its effective recreation of VT-100 screen displays and commands.

Performance and Protection

Using BobsTerm extensively with a Hayes-compatible modem, the Prometheus Promodem, the program did all that it claimed, smoothly and neatly. The program is excellent in features and performance.

BobsTerm is copy-protected. The protection uses a dongle that plugs into joystick port two. Though it is possible to lose the dongle and render the program useless, dongle protection is one of the less offensive forms of copy protection.

In the case of BobsTerm, it allows you to copy the program several times and customize each version for a particular service. For instance, you might want one flavor of BobsTerm for calling bulletin boards, another for contacting the mainframe at the office. Of course, it isn't necessary to have a separate disk for different services but the load-n-go convenience is a nice option.

If this review sounds like high praise for BobsTerm Pro, consider it so. From its detailed and copious range of features to the well-written spiral-bound users' manual, BobsTerm Pro for the C-128 sets new standards in Commodore telecommunications. Whether you're a newcomer or a longtime modem jockey, chances are good that BobsTerm Pro has what you need.

■

FSD-1 Disk Drive:

Cool, Compatible & A Hot Price

by Grant Johnson

Commodore's 1541 disk drive has been both bane and joy to computer users since it first reached the market in 1982. Its price — half that of its nearest competitor — caused a minor revolution. Its design was distinctive as well. The 1541 was a "smart" drive that contained its own memory and microprocessor. And the format in which it stored infomation was quite incompatible with that of every other manufacturer.

With a unique design and a killer price, the 1541 went essentially unchallenged in the market place — bugs, bad documentation and all. But technology has a way of making one day's high-tech into the next day's commonplace. With a huge potential market, there have been several independent attempts to share in Commodore's disk drive action.

A variety of good third-party drives have been marketed; but their success (and even survival) has been limited by price on the one hand and compatibility problems on the other.

Compatibility

To come up with a disk drive that could do what the 1541 does might seem like a simple task. In fact, it is relatively easy to assemble the physical parts to do just that. But doing precisely what the 1541 does is not a simple matter at all.

Copy protection schemes, in particular, present the greatest difficulties for drive designers. These schemes not only set out to render parts of the operating system unworkable; but also they seek out and exploit the system's most arcane and accidental features. The more indirect and bizarre the method, the better it works as copy protection.

The 1541 disk drive gets its smarts from a control program contained in Read Only Memory (ROM). The program, about 16K, tells the microprocessor in the drive everything: How to turn on the "busy" light, how to move the read/write head, how to communicate on the serial buss. In the case of the C-64 and 128, a large part of the computer's operating system is embodied in the drive's ROM.

Smaller than the 1541 but highly compatible, the FSD-1 is an economical alternative.

Black Box

Electrical engineers are trained to simplify design problems by regarding the parts of a complex whole as if they were contained in a "black box." You analyse what goes into the box, and what comes out of the box. Then you duplicate it. Viewed in this way a disk drive is a device that translates magnetic regions into digital information and vice-versa. To replace a device such as the 1541 with one of your own manufacture, you just make sure that what goes in and comes out is in the proper form. What you do in-between is up to you.

White Box

The FSD-1 comes in a white box. Most of its enclosure is metal — only the front inch or so of the body is molded plastic. At 6⅜" wide, 3" high and 13" deep, it is smaller in every dimension than the 1541 (7⅞" × 3⅞" × 14¾").

On the front is a red pilot light, a green busy light and a twist-type engagement lever. On the back are a rocker power switch, a power cord, a fuse holder and two standard (five-pin DIN) serial port connectors. Two micro switches for setting the drive's device number (8 through 11) are located on the bottom of the unit.

If you are accustomed to the 1541, you will find that the FSD-1 is a bit quieter when running. You will also find that it is surprisingly cool in operation. The manual claims median time between failures (MTBF) of 8,000 hours. While our test unit has not seen nearly that many hours, it has yet to make a false move.

The manual also says that the FSD-1 gives ". . . much better performance in terms of data loading and writing speed and memory buffer size." It was put through a comparison test with the 1541 (program file loads, 45-block sequential file read and GEOS boot sequence), and seemed to be marginally faster. But not what you'd write home about. In operation, I did not see evidence of a change in buffer size or determine from the documentation how it might be used.

First Impression

What really impressed me was the FSD-1's *phenomenal* compatibility. It's one thing to create a black box that meets listed specifications and quite another to mimic the contortions forced on a 1541 by copy protection. I was unable to find a single piece of software that would not load.

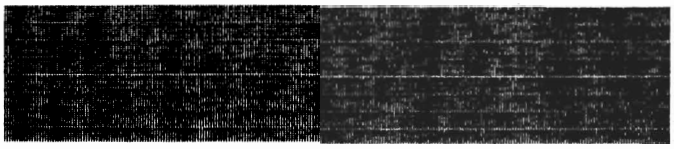
As the FSD-1 passed test after test, I began to realize how South Pacific islanders must have felt when they first saw two copies of the same book. How could this possibly be?!

I got out my disk utilities and opened channel 15 to the FSD-1 for a closer examination. Wherever I looked inside the FSD-1, I found 1541. I finally decided that a thorough look at the ROM was in order.

ROM Dump

I wrote a quick program to dump the ROM of the FSD-1 and the ROM from a factory-issue 1541. The program compares the two ROMs (locations C100–FFFF (49408–65535) — or at least what the drives say is in their ROMs. This is the area of ROM that is usually of interest to programmers and is frequently disassembled and listed in books such as The Anatomy of the 1541 Disk Drive, (Englisch and Szczepanowski) or Inside Commodore DOS (Immers and Neufeld). The program uses a dot-matrix printer to print a single dot if a byte comparison is equal. A listing of the program follows this article. (Note to code jockeys: There are faster ways to do this, but I used *only* documented DOS commands. Also, the ROMs were dumped to a disk file as I anticipated that further analysis (jump tables and shifted code) would be necessary.)

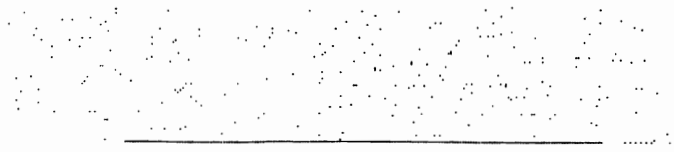
The printer prints the dots in rows of 256. The emerging pattern of dots gives a quick indication of where the ROM contents are equal in both value and position. The output of the program is reproduced below:



Each dot represents a perfect match. This comparison of 1541 and FSD-1 shows nearly 16K of ROM equality.

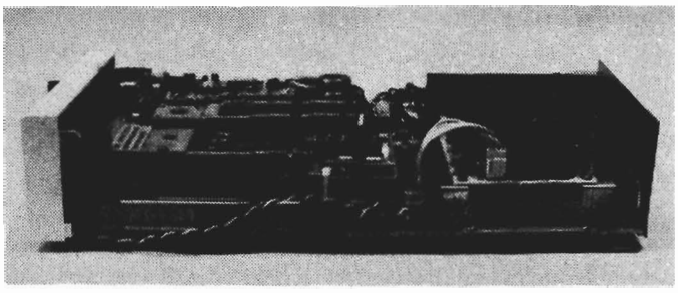
No need to squint; not a single dot is missing! When asked to take a picture of itself, this program indicated that the contents of the FSD-1 ROM was exactly equal in both value and position to that of the 1541.

For contrast, I ran the program on an MSD SD-2 disk drive. As you can see from the printout below, only the last 256-byte line has much correspondence to the 1541.



Comparison of MSD SD-2 shows little more than chance similarity, except in the last line.

This comparative anatomy suggests why the FSD-1 copes with copy protection easily and the MSD does not. What is not clear is exactly what I was reading from the FSD-1. I did not pull the ROM chip, I only asked for the information that appears in the corresponding area of a 1541. We have been assured by Emerald Components International, the company



The interior layout of the FSD-1 is similar to 1541. The Newtronics mechanism is to the left, power supply to the rightand main circuit board underneath.

that markets the FSD-1 in the US, that great care was taken to ensure that the ROM did not run afoul of Commodore patents.

Under the Skin

For a professional opinion of the hardware inside, I went to the owner of a service center that specializes in the repair of Commodore equipment and has had his hands inside thousands of 1541 disk drives. The physical layout in the FSD-1 is very similar to a 1571. The power supply is above the circuit board. The drive mechanism is a Newtronics D500, while the 1571 uses a D502 (the "2" is for two heads).

As the main circuit board came into view, my service technician could immediately identify the 6502 processor, RAM, ROM and most of the other components.

The FSD-1 doesn't use the logic array chip, as Commodore does. The logic array chip is what actually drives the stepper motor, the write logic and erase logic. This is one of the unique features that make the FSD-1 an FSD-1 and not a 1541 copy. Another difference is that the ROM is all on one chip, not the two chips that Commodore uses.

"Basically, the FSD-1 looks like a 1541; some modifications, but nothing drastic. The power supply looks a bit more efficient — never one of Commodore's strong points.

The FSD-1 has been for sale for about two years now. Ironically, aggressive priceing has done much to limit its sales. The factory quotes a retail price of $219.00, but the going in-store retail is nearer $199.00 (right in line with Commodore's 1541). Yet Emerald Components sells the drive at $139.00. At that price, a retailer would have to buy the drives in lots of a hundred or more to bring his cost to where he could afford to sell the FSD-1.

Conclusion

The FSD-1 is a high quality product. As a simple replacement for the 1541, it offers good value for the money. Added features such as the well-designed power supply, device-number confuguration switches and compact dimensions add even more value. Of course, there can never be any guarantees of compatibility; but, as it stands, the FSD-1 comes about as close to a 1541 as you can get.

Program listing:

```
500 fsd = 9:rem fsd set for device nine
520 cbm = 8:rem cbm set for device eight
1000 open 15,cbm,15,"i0"
1050 open 1,8,1,"cbm,sequential,write":p
rint"reading cbm"
1070 gosub 5000
1100 open 15,fsd,15,"i0"
1150 open 1,8,1,"fsd,sequential,write":p
rint"reading fsd"
1170 gosub 5000
1200 :
1250 print"print routine"
1300 open 4,4,5:rem printer file
1310 open 9,8,9,"msd,sequential,read":re
m fsd ROM file
1315 open 8,8,8,"cbm,sequential,read":re
m cbm ROM file
1320 print#4,chr$(27)"A"chr$(8):rem set
printer line feeds to 8/72 inch
1330 dim buffer(256)
1350 for pass = 1 to 64
1410 : for row = 7 to 0 step - 1
1450 :   for byte = 1 to 256
1525 :     get#8,cbm$
1550 :     get#9,fsd$
1600 :     if cbm$=fsd$ then buffer(byte
)=buffer(byte)+2ow
1650 :   next byte
1700 : next row
1800 : print#4, chr$(27)"K"chr$(0)chr$(1
);:rem set for 256 bytes of graphics
1820 : for byte = 1 to 256
1840 :   print#4,chr$(buffer(byte));
1845 :   print buffer(byte);:buffer(byte
) = 0
1850 : next byte
1860 : print#4,chr$(13)chr$(10);:rem mov
e to next page
1870 next pass
1900 close 8: close 9: close 4
2000 end
3000 :
5000 for address = 49408 to 65535:rem C1
00-FFFF hex
5050 : hi = int(address/256)
5100 : lo = address-256*hi
5350 : print#15, "m-r"chr$(lo)chr$(hi):r
em memory-read
5400 : get#15, byte$:if byte$=""then byt
e$=chr$(0)
5450 : print#1, byte$;
5500 next address
5550 print#1,"":close 1:close 15
5600 return
```

■

Freeze Frame — Seemed Like A Good Idea At The Time

by Shelly Roberts

First of all, I am really sorry to learn of the demise of the Cardco Company. Thanks to them my original VIC-20 had a lot more memory than Jack Tramiel intended it to have. And my 64 talked reliably to my various printers, continuously, without fail, year after year. I liked Cardco, and I trusted them. They are no more.

But there is one last product from Cardco, and it demands a little verbiage because it is appearing posthumously on dealers' shelves. The product is called **Freeze Frame**, and if only it had worked as advertised.

Freeze Frame purports to be a completely transparent screen dump. And if that is too technical for any of you out there who don't speak any more hexidecimal or hardware than I do, that means that at the touch of a key or two, whatever is on your screen is sent to your dot matrix printer. It's a great idea, and I have been looking for one, literally, for years. All the screen dumps I have found are loaded from disk, and they all sit in memory locations taken up by the program I am using. So, when I go to activate it, the second program I loaded has wiped a portion of it out.

At first, Freeze Frame seemed to solve this dilemma by being permanently carved into a ROM chip in a cartridge that lived outside my 64, rather than being loaded from software. Its literature touts this advantage and claims to allow you to dump anything that's on the screen. The manual informs you that the programming checks to find out if the screen is hi-res or type and sends the appropriate information to the printer. Sometimes it does. Sometimes it doesn't.

I wanted the screen dump primarily for use with my telecommunicating. The package I bought even had a free hour on PlayNET included. The manual talked about Freeze Frame's ability to allow this kind of printer dumping, but cautioned that the time it took for the information transfer might interfere with the signal your computer sends to the host system and might dump you off line. But, it said, you would at least get the screen.

That would have been fine if I could have actually logged onto PlayNET with the cartridge in place. As it happened, with the cartridge plugged in, the operation repeatedly got hung up before I could gain access to the net. "Awaiting communications with Playnet" sat on my screen for as long as fifteen minutes if I was patient enough to wait that long. Thinking that the problem might be PlayNET's or even Telenet's, I attempted to log on without the cartridge and immediately got through.

The same thing happened when I tried to access Q-Link.

Undaunted, and being an applications hacker from way back, I attempted one more dangerous and difficult operation.

(Children: do *not* attempt this *WITH OR WITHOUT* parental supervision!)

I logged onto one or the other system, and attempted to plug the cartridge in with the computer operating and the system on-line. I knew that I was at risk of blowing my entire computer system, but, frustrated, I was willing to risk it. What happened was a whole new palette of colors that Playnet never intended, and a crashed screen. I was lucky enough not to blow the computer, but I never successfully operated Freeze Frame and any of my electronetworks at the same time.

Freeze Frame *did* deliver a fairly accurate (but elongated) version of the intro screen from Epyx Summer Games, and several other programs, but couldn't send a Doodle picture I was staring at out to the printer.

It is being sold by B. Dalton's Software department for $49.95. PlayNET offers it for $39.95. Probably, it will go into the super-sale bins for a whole lot less soon. If you have a specific need for a screen dump that works with only some, not all, of your software, at $5 or $10 it will be a good deal. Maybe even a great deal. At fifty bucks, forget it!

Maybe it really does work, and I am just missing some critical piece of information I could have gotten easily through a simple phone call. Cardco went bankrupt. They don't have a telephone number to call to find out that critical piece of information. I took it back and asked for a refund. I will have to keep waiting for a transparent screen dump.

■

Two Spreadsheets For The Amiga:

VIP Professional and MaxiPlan

by Grant Johnson

Two full-featured spreadsheets available for the Amiga offer a study in contrasts. Both are integrated packages capable of spreadsheet, database and graphics functions. VIP Professional, which has been available for some time, is a Lotus 1 2 3-like program. Fact is, it is so much like Lotus 1 2 3 that if you know 1 2 3 you need never open Professional's manual. (But don't try the Lotus Release 2 enhancements, they're not supported).

1 2 3 and its clones are very rich with capabilities and options. I have a private theory that Lotus 1 2 3 is the best-designed adventure game of all time. From spreadsheet through database and on into graphics functions, each step along the way, you are challenged by choices and new experiences; and each time you meet the challenge you are rewarded with ever more possibilities.

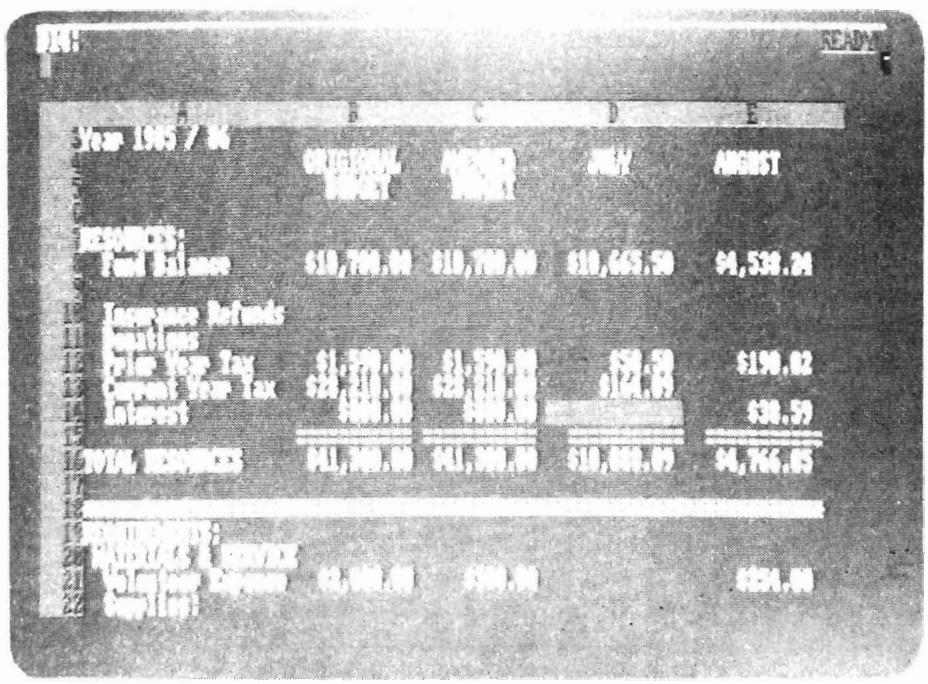
The thing is even programmable and there are at least a dozen books in print that detail all the variations, from how to figure the futures market to using 1 2 3 as a word processor. This program has more nooks and crannies than a Byzantine city.

Business software, hah! This stuff is a kick. Even so, Lotus 1 2 3 represents a mature software technology and VIP Professional is a faithful, reliable, conservative imitator.

MaxiPlan, on the other hand, is full of flash and sizzle. It is an education in communications theory to see how something as seemingly prosaic as a spreadsheet can come alive when presented by a new-wave machine like the Amiga: You have eight colors to work with. You may render characters in your choice of plain, bold, underlined, italics or any combination thereof. Character style and color can change depending on the information it represents.

This spreadsheet knows how to talk. If you choose, it will verbally read your data as you enter it. Explanatory notes you may attach to a cell can be presented by an on-screen requester box, or verbally, or both. Or, again based on the nature of the information, you may ask MaxiPlan to report the contents of a cell that is not even visible on the screen.

MaxiPlan fully uses Intuition's display capabilities. You



VIP Professional, a Lotus 1 2 3 imitator, displays standard, no-frills spreadsheet.

may have up to six windows on the screen at a time. Each may be sized, moved, scrolled, fronted, backed and closed. Cells or ranges of cells may be selected, copied, moved or deleted with a click of the mouse (or, less efficiently, with the keyboard) and you can move data from one on-screen spreadsheet to another. (Yes, you can have several on the screen at once.) With the sole exception of text, you can create an entire spreadsheet with the mouse and menus alone — even enter the numbers and formulas!

Getting from place to place in a MaxiPlan spreadsheet is a special treat. Click the "ZOOM/NORM" toggle and you find yourself high above a spreadsheet in which the cells are small color-coded (text, value and formula) squares. Point the mouse at the area you wish to see, toggle "NORM" and you're there. I don't mean to sound "gee-whiz", but I *know* what it takes on the programmer's end for a machine to produce such a screen. For the user, it's just a flick of the wrist and the blink of an eye. This is what life with a high-powered computer is all about.

Both VIP Professional and MaxiPlan produce a variety of graphs. Professional does have an auxiliary program for manipulating color graphics; but MaxiPlan does graphics with dazzling style. Call up a pie chart and you can watch it chanage shape as the spreadsheet data is changed in the "next-door" window. You then can grab this graph-window with the mouse and move it around. You can even change its dimensions with the size gadget, and MaxiPlan will automatically recreate the graph to the new scale.

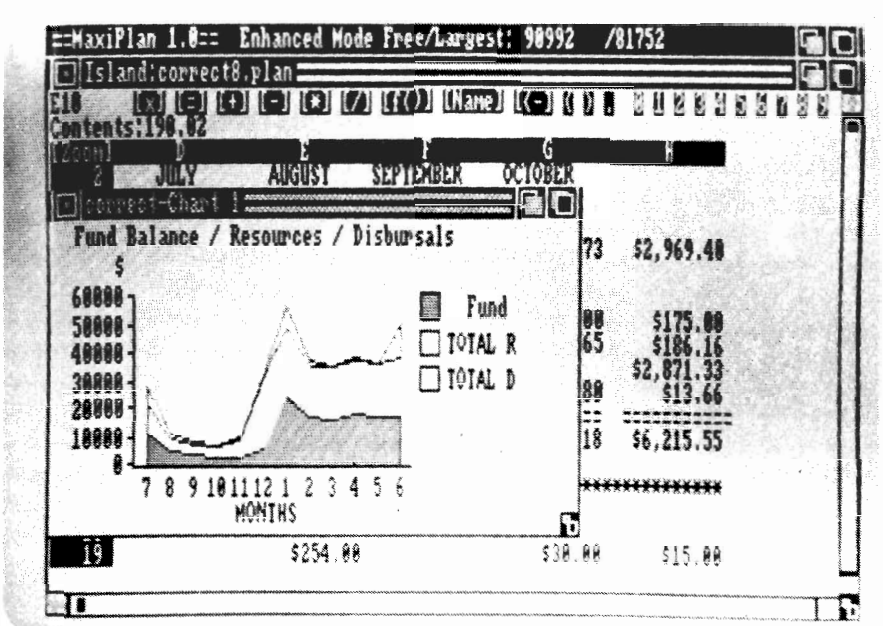
$50 Requestor

Unhappily, when you go to the part of the menu that deals with "macros," you find only ordering information and a $50 requestor. MaxiPlan/Macros will be ready in October for an additional fifty bucks. (There is a special limited-time coupon in the package allowing users to buy MaxiPlan/Macros for the introductory price of $25.00.)

MaxiPlan is not yet "mature software technology". Young and brash, it was even written for Kickstart/Workbench 1.2. I exercised MaxiPlan vigorously and did find a minor glitch or two. More seriously, there were problems with some of the database functions on our review copy; but MaxiSoft said that the fix was in the mail.

On the other hand, there was never a hint of a misstep with Professional.

So, for a good time, you can put on your three-piece suit and explore Professional with apparent dignity, or you can open your collar to show your tan, adjust your Porsche designer sunglasses and blow 'em away with the stunning MaxiPlan.



With support of Amiga windowing, MaxiPlan opens up to six windows at once. Here a foreground window displays graph of spreadsheet data in background window.

Turbo MIRV — A Nice Idea But Where Do You Put It?

by Shelly Roberts

This program lists itself as (and I quote) "An independent high speed system of concurrently running programs including: calculator, alarm clock, calendar, auto dial phone directory, memo pad writer & editor which operate simultaneously with your existing software. Commodore 64/128."

MIRV stands for Multiple Information Retrieval Vehicle. The idea works beautifully on the IBM PC as a series of programs called "Pop-ups" but the IBM PC has a lot more memory than the 64. What you are supposed to be able to do is run almost any kind of a main program, also load MIRV and if you need to interrupt the main program, call MIRV up as you need it. It suspends operation of your main program, lets you do a quick calculation, or write yourself a note, or look up a phone number, then return to your main program.

The disappointment here is, as is too often the case, titillation followed by an unfulfilled promise. It would be really nifty to be able to simulate multi-tasking on the Commodore. It would be nice to use the machine as an instant calculator while word processing. Or have the computer stop you after the 16th hour of typing. It would be nice, if only it would work. In most of the programs that I use most often, it doesn't work.

The problem doesn't seem to be in the program itself. I have been able to load MIRV with no other program in memory and watch it perform as it is supposed to. The problem is using it with another program, which is what it says it is for.

The loading instructions give the user way too much latitude, and not nearly enough information to make any sense of the latitude. You have a choice of 5 user-selected areas for something called a roving segment location, and an interrupt handler location which can be situated at any of 13 user selected areas labled **a** through **m**. The manual does not detail where any of these 65 variables are in the computer, but suggests (and I quote again) "Should Turbo MIRV not run with a particular application program, try using different roving segment and interrupt handler locations." Easy for them to say!

To start with, most of us have no idea where programs are located in memory and the manufacturers don't choose to tell us such details. On top of that lack of information, we are supposed to trial-and-error our way into the devine inspiration that will activate MIRV. I spent three hours, three days in a row, trying to find a place for MIRV to live with Easy Script. I tried again for Word Pro64. I gave up and called the company. They promised to call me back. They never did. I called again and they gave me the name of the programmer. I called and he never called me back.

Perhaps, when MIRV is accurately activated, it is a nifty little program to have. But a dozen hours of trying to seat a program I don't really require is far too much work. In all fairness, I will give the programmer another chance to call me back and give me a list of the right location combinations for various high-use programs. If he does that, I will have *The Guide* publish it, and MIRV will become a whole lot more than "a nice idea if only it would work".

Till then, I don't recommend that you spend the money for MIRV.

■

". . . The loading instructions give the user way too much latitude, and not nearly enough information . . ."

QUICKIES:

The NeverEnding Story

— C-64/128
$29.95
Datasoft

Adventurers who aren't too attached to the brain-busting difficulty of some Infocom text adventures will enjoy the attractive graphics and modest challenges of the NeverEnding Story.

Based on the movie, The NeverEnding Story puts the player through three different episodes in order to save Fantasia from The Nothing. The puzzles are typical find-the-object adventure game fare embellished with some eye-catching graphics. As objects are picked up, for instance, graphics windows open on-screen displaying the object while the lower half of the display continues to print out the commands and place descriptions.

Each of the three sections of the adventure contain about 35 locations and a dozen useable objects. This is not one of those enormous, NeverEnding adventures. And the use of the objects is fairly logical and clear-cut making the problems solvable by those who haven't yet developed the cock-eyed logic encouraged by computer adventures.

Experienced players will find The NeverEnding Story too easy for their finely-honed skills. For an introductory level graphics adventure, however, The NeverEnding Story provides a full measure of entertainment with a minimum of frustration.

If only the rendition of the title song, which plays CONSTANTLY during the adventure, were a little less irritating. Fortunately, it can be disabled.

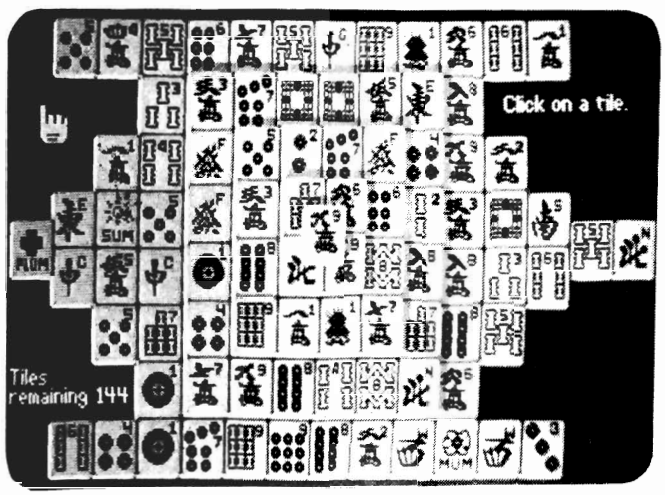
Bob Lindstrom

Shanghai

— C-64/128
$34.85
— Amiga
$49.95
Activision

It's somewhat surprising that this ancient oriental form of solitaire hasn't been computerized earlier. Shanghai is an electronic version of the classic Mah-Jongg.

The 64 version is quite nicely done; but the Amiga version is a knock-out. It is one of the classiest looking games I've yet seen on the screen of my Amiga.



The 64 was obviously limited in the graphic detail that could be built into the program; but Activision still has delivered a playable and entertaining package.

If you aren't familiar with Mah-Jongg, it involves 144 tiles in seven different patterns that are stacked in a five-tier pyramid. When you find matching tiles on the left or right edge of a row, you can remove them from play. If you remove all the tiles, you win.

A simple idea, but a very addictive game. When you sit down to play this one, you'd better not be planning on doing anything else that night!

Most of the time, the fate stacks the tiles in such a way that it is actually impossible to clear the board. However, when you do manage that infrequent goal, Activision rewards you with a graphic surprise. In the 64/128 version, it's nothing more than a dragon (the same on on the title page) that breathes fire. On the Amiga, however . . . well, it's such a surprise that we don't want to ruin it for you. It's worth the wait.

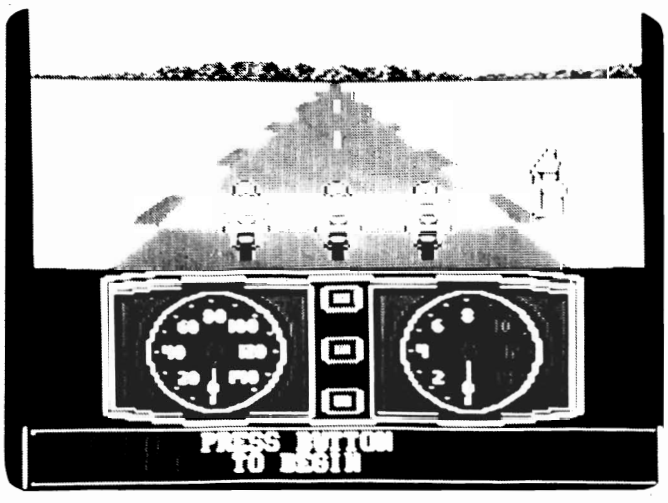
C-64 owners in search of a game with a lot more staying power than the typical shoot-'em-up will love Shanghai. For Amiga owners, the incredible graphics and outstanding game play make this a must-have.

Randy Chase

Super Cycle

— C-64/128
$29.95
Epyx

This home "knock-off" of the popular motorcycle arcade game Hang On has the graphics of Pole Position and the Speedometer and Tachometer output of Great American Cross Country Road Race.



For racing thrills, either of the other two games is preferable to Super Cycle; but, then, they're also on four wheels. Those who feel comfortable only when they have that 750cc "hog" gripped firmly between their legs will prefer Super Cycle.

There's no surprise here. Shift through three gears, avoid other cyclists, progress through three levels of difficulty and dodge poor road conditions like pot holes, ice and narrow lanes.

The action and animation are excellent. The inertia on the turns could have been improved. Even at high speeds, you aren't thrown to the outside of the curves with sufficient force. On the other hand, your fellow road hogs offer problems enough by forcing you into the shoulders.

A year ago, this program might have had them screaming in the curves. Now, it's just more arcade racing action; but first-rate of its kind.

Bob Lindstrom

The Advanced Music System

— C-64/128
$29.95
Firebird

The big question with most home computer music programs is: How much patience do you have? Using a joystick to drag notes from the menu to the staff might be fine for someone who wants to transcribe beginning piano solos into their Commodore (though I can't imagine why); but for anyone who wants to do semi-serious music-making with their C-64, using most available music programs is like riding a tricycle in the Indy 500.

I admit that serious musicians aren't going to use a C-64. And yet, the SID chip offers just enough capability to keep the casual music hobbyist amused, *if* the right software is available.

The right software *is* available. It's The Music System and The Advanced Music System from Firebird. The key to success here is complete keyboard note entry. These programs essentially turn the C-64/128 into a music typewriter. There's no joystick entry, no menu, no sluggish entry. Just type and tune up.

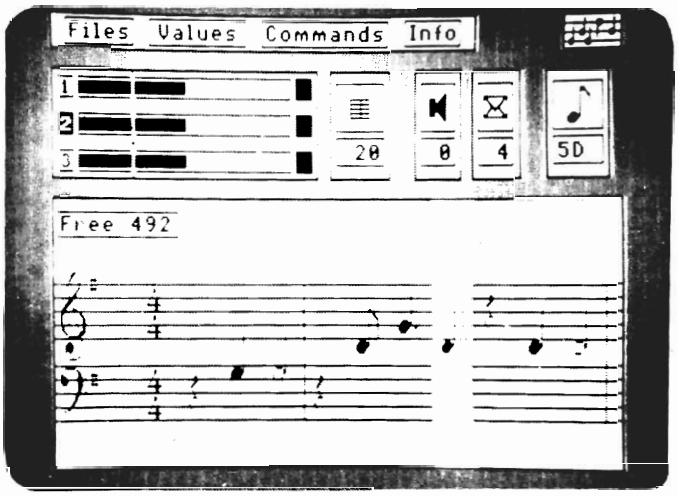
The rhythmic values are cycled with the **Q** and **A** keys, the sound quality with **Z** and **X**. Position the cursor on the on-screen music staff with the Up-Arrow (↑) and the Equals (=) keys, hit RETURN

and, Look, Ma! I'm makin' music. A quick strike of the SPACE BAR and The Music System moves into Rest mode allowing the user to select and position rests with the same quick ease.

Unlike programs like Activision's The Music Studio that playback in a columnar format (and therefore require absolute precision in note alignment), The Advanced Music System (TAMS) automatically aligns notes according to their rhythmic value, a far more musical and logical way of operating. When you enter a specific rhythmic value for a note, it will playback with that value and in coordination with the other notes in the measure. Bravo, TAMS.

There are many other features for editing notes, inputting notes in real time (sluggish but effective), customizing the timbre of sounds, and printing copies of your compositions.

TAMS also claims support for Passport Design's MIDI port (six MIDI voice capacity) and for Sight and Sound's piano keyboard overlay.



The Advanced Music System still is not a professional composition tool; but it is an outstanding music program for the C-64/128 and provides a first-class gateway to the sound capabilities of the SID chip.

Bob Lindstrom

VideoFile

— C-64/128
$29.95
VideoFile

What is on those mysterious black boxes stacked over in the corner? TV shows, I guess. But which ones? Well, that's your guess.

Confusion about your video collection increases twice as quickly as the number of tapes you own. Is that the tape with the "My Mother, The Car" reruns? Or is that the "Leave to Beaver" tape? And, if so, at what point on the tape does Beaver step on the lady's thumb?

VideoFile was made to answer those and many other questions about what you've put on those spools of plastic spaghetti. VideoFile is a specialized database that keeps track of where you've recorded what on which tapes. And, as a nice plus, it will also tell you where you have enough empty space to preserve the next episode of, say, "Pee Wee's Playhouse."

When you set up your VideoFile database, the program prompts you for VHS or Beta tapes and a recording speed. Bad news right off the mark. VideoFile will not let you mix formats or speeds. Once you make a choice, you have to stick with it and there's no recording part of a tape in six-hour mode and another part in two-hour mode. And a single database will handle only 50 tapes. (Both of these are good reasons for an update.)

Then you have the chance to create up to three categories of program — comedies, dramas, music videos, for instance. Like speed and format, categories cannot be changed once they are chosen.

When it comes time to enter new programs, the program asks you which tape is in use (tapes must be numbered) and where on the tape the program begins (in hours and minutes). Macros can be created to speed-up program entry. If you are recording all the "Star Trek" episodes, you can create a macro that will type "Star Trek" with a single keystroke.

Once a database has been created, users can exercise the usual database functions of searches and sorts. Because VideoFile distinguishes between upper and lower case, it is important that all searches match the original entries EXACTLY.

For those who need to locate a program down to the last foot of tape, VideoFile allows you to customize the program for your particular VCR and its tape counter. Two different kinds of tape counter mechanisms are taken into account which should make this feature functional for a majority of users. Run a tape to the end and enter the final tape counter number into VideoFile. From that point on, the program should be able to calculate from the tape timings the counter numbers that mark the beginning of any program on that tape. Pretty slick — fairly accurate, too.

VideoFile works. Its limitations of tape capacity, speed and format make it a little less useful than one would expect of a computer database, even one so specialized. Still, VideoFile can provide real incentive and real organizing power for the disorganized video fanatic.

Bob Lindstrom

Personal Choice Collection

— C-64/128
$99.95
$39.95 purchased separately
Personal Choice

The Creative Software Personal Productivity series for the 64 was well received. Since then, Creative Software has become Activision's Personal Choice subsidiary and the series has been re-named, re-worked and re-released as Planner's Choice, a spreadsheet; Filer's Choice, a database; and Writer's Choice, a word processor. These programs are now available in versions that take advantage of the 80-column display, greater speed and memory of the 128.

All three programs are available as a boxed set, and, while not integrated in the true sense, they do work together. Each program can stand on its own merits. But output from the spreadsheet can be loaded into a Writer's Choice document for manipulation or to become part of a larger document. Likewise with Filer's Choice, information from a name and address file can be produced and later merged to a Writer's Choice document.

The design of these products is "straight down the middle". Neither overly complex nor overly simple, these products are aimed squarely at the home computer user looking for practical results.

I was pleased to see that Writer's Choice now uses SEQential disk files, but dismayed to find that the format used is idiosyncratic — a factor that will limit your ability to work with programs from other sources. As a result, the choice series should be considered as a set.

The word processor comes with a spelling checker, but you must put your documents on disk, exit the word processor and load the spelling checker to use it. Of the three packages, Planner's Choice (spreadsheet) is more closely the equal of its dedicated-program competition, and has some unusually nice touches such as a character count during information entry — wish my high-powered spreadsheet had that. Filer's Choice is not relational or programmable, but is logical in operation and painless to master.

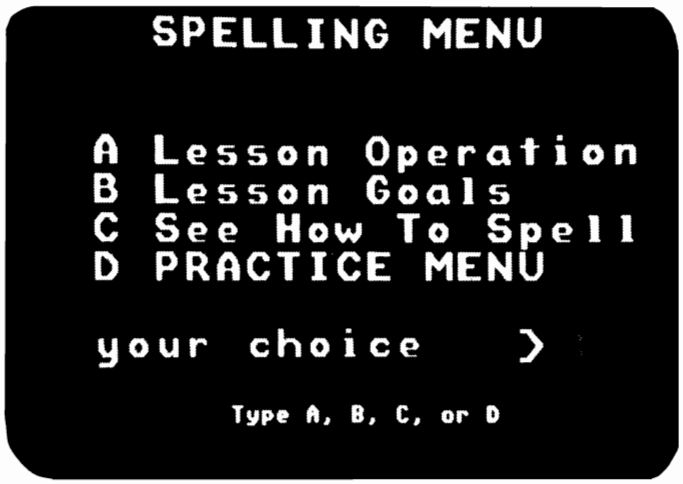
Grant Johnson

Whole Brain Spelling

— C-64/128
$39.95
SubLogic

Can't spell, eh? Whole Brain Spelling believes that if you can picture a word in different ways, you can spell it in one way, the correct way.

Here's the premise: As it displays your work, Whole Brain calls attention to your erroneous spelling attempts by using different colors, a mixture of upper and lower case, etc. to highlight the errors. The point is, vary the physical appearance of the word sufficiently to create a mental-visual impression on your tiny mind.



Does it work? I don't know. I can say that THE PROGRAM works. Whole Brain does exactly what it claims. It monitors your spelling efforts in a variety of tests at several difficulty levels and changes the "look" of the word to encourage your involvement in learning the correct spellings.

Whole Brain Spelling comes in several different versions, each purchased separately. There are versions from Child's words to Medical, each with a word list of 2000 words. Each one sells for the full asking price of the complete program. A more economical way to go would have been to make data disks available; perhaps SubLogic knows best how to rake in the money.

Bob Lindstrom

POTPOURRI:

DPAINT Strikes Back

As soon as the boggle wore off the eye-boggling features of Electronic Arts' DeluxePaint for the Amiga, users began compiling "If Only . . ." lists of features we'd like to see.

Those who thought that DPaint was one colorful flash in the Amiga pan, never to be seen again, should think again. After much speculation and hoping by Amiga users, EA has announced DeluxePaint Version 2.0.

In addition to all the features of the original, DPaint 2.0 will include three-dimensional perspective and rotation; "anti-aliasing" to smooth color edges; pattern fill; controllable color dithering; stencils that let users paint behind and in front of other objects; a "Smooth" feature to fight the jaggies; a "Corral" feature to pick up odd-shaped images; a variable page size that lets users paint pictures bigger than the Amiga screen for full 8½" × 11" pictures; and much more.

At press time, prices were not yet available (probably around $120). Registered DPaint 1.0 owners will be offered the opportunity to upgrade at a reduced rate (probably $20-$30).

Blood-Red Computing

What is the most impressive and innovative use of computer power? The space program? Electronic databases? Mechanical and biological simulation? Naaahhh. What's wrong with you? Aren't you thinking?

The answer is that computer technology finally has allowed scientists to bring color to George Romero's low budget, black-and-white movie gorefest Night of the Living Dead.

In the monochrome glory of black-and-white, schlockmeister Romero's slice-and-dice spectacular was tolerable. Even some weak-intestined viewers were able to munch comfortably on their Ju-Jubes as the little girl disassembled Mom with a cement trowel.

No more. Leave those Raisinettes in the cupboard this season because Hal Roach Studios has used their computer-controlled Colorization technology to bring splashing, drooling color to the living dead.

There will be color spreading across the floor; color dripping from the ceiling; color running down the walls; color spurting, shooting, streaming and smearing. Does that sound like fun, or what?

Now, if they would only come up with a computerized way to eliminate stomach upset.

Night of the Living Dead is available *IN COLOR* (Do we make ourselves clear?) on videocassette for $29.95 from Hal Roach Studios.

Oh yeah, they're also adding color to Suddenly, a movie starring some guy named Sinatra. But we don't think anyone gets eaten in that one.

Profit. Profit? PROFIT!!!!

It was a tough fight, Ma; but we won. Well, we're still on our feet and punching, anyway.

After slugging it out with increasing losses for several quarters, Commodore International Ltd. reported a $1.2 million profit (four cents a share) for the fourth quarter of fiscal 1986 on sales of $208.6 million, an increase of 58 percent over the preceding quarter.

The company credited the fourth quarter profit to increased sales of the Amiga. The fourth quarter sales for the Amiga were the strongest yet for the computer, perhaps due in part to an attractive price promotion offered by Commodore.

However, the 74 percent fourth quarter sales increase over the third quarter extended to all Commodore products, including the C-64.

Don't pull the stopper on the champagne just yet, though. Commodore still reported an overall loss for 1986 of $127.9 million, a 12 percent increase over the $113.9 million loss of 1985.

According to Commodore President Thomas Rattigan, however, the profit points out the effectiveness of the restructuring and inventory reductions of the past months and leaves Commodore in position for increased profits in fiscal 1987.

Comparing Apples and Amigas

A lot of sound but not much graphics fury — the Apple II GS is the latest entry in the Bury Amiga sweepstakes but it couldn't spade up a shovelful if it tried.

Announced in September, the Apple II GS carries on Apple's admirable support for its octogenarian (that's in computer years) Apple II series. The new kid has an eight/sixteen bit processor that is 90 percent compatible with Apple IIe/c software and runs somewhat faster than the IIe/c.

Where industry pundits expected it to compete with the Amiga are in its enhanced sound and graphics.

The II GS uses an Ensoniq synthesizer chip, the same one found in some stand-alone synthesizers. In addition to having the ability to employ digitized sound samples like the Amiga, the Ensoniq chip gives the II GS a whopping 15 voices (though there may be some hidden limits to their use.)

Oops, looks like Apple outran the Amiga there. The II GS sound should play circles around the Amiga. Sorry, Amiga fans.

But once the sound of the opening gun is over, Amiga pulls way out in front.

The highest resolution available on the II GS is comparable to the Amiga's 16-color, 640 × 200 medium-resolution. It's nice, very nice, but no competition for the Amiga's 32-color low-resolution or its 16-color, 640 × 400 high-resolution modes.

What's worse, after finally discovering the wonderful world of sound and high-resolution graphics, Apple overlooked the fact that people like to see those graphics move. The II GS has none of the Amiga's specialized animation processing. NO blitter. NO sprites. The new graphics modes even sacrifice page-flipping, a primary means of effecting animation on the Apple.

Looks like the II GS slowed down in the stretch.

Worst of all, the Apple II GS has NO multi-tasking. And all for the "bargain" price of $1900 for a 256K system with RGB monitor and a single drive.

Leave it to Apple to design a computer for the 70's, market it in the 80's and sell it at 1990's prices.

Amigas For Less

That felt so good, let's do it again.

The Buy-An-Amiga, Get-A-Monitor-Free deal was such a boost for Commodore sales this Spring that a similar price promotion has been launched to encourage Fall sales.

Starting October 1, Commodore dealers began selling the 512K Amiga with the 1080 RGB monitor for $1495, a price cut of $400 under suggested retail.

Furthermore, instant credit courtesy of an Amiga Credit Card will see that you don't have to pay a penny for that baby until February 1987.

And if you talk nicely (or threaten) your local dealer, he might drop a hundred bucks below that price.

Nice move, Commodore.

Take THAT, Apple.

Start ducking over there at Atari, JT.

The offer continues through Christmas 1986.

Weird Ware???

Weirdware! What is it and how do you find it? Syndicated computer columnist Dan Gutman has all of the answers in his new book *I Didn't Know You Could Do THAT With A Computer.*

Weirdware is the off-the-wall stuff, the things you may never have thought about. Or perhaps it may include that unusual piece of software you've been looking for but could never find.

If, for instance, you've been searching in vain for a good program to use in managing your hog farm, you'll be delighted to know that Gutman has included a chapter on Swine Management, the software solution to high-tech pig feeders. (The bad news is that this one won't run on your Commodore; if you want to compute the proper percentages in your hog slop, you'll have to take the plunge and get either an Apple, IBM, or TRS-80.)

If your son is preparing for his Bar Mitzvah, you might want to take a look at Bar Mitvah Compu-Tutor. Or, perhaps you might prefer The Electronic Prayer Guide designed to help the traveling Moslem remember his daily prayers and determine the correct direction to face while saying them. This one isn't just a program, but a self-contained stand-alone little computer. It will beep to remind you of the time, prompt you with the appropriate prayer, and help determine just where Mecca is in relation to you. All for a mere $400.

Gutman's book covers such diverse topics as bowling leagues, gardening, self-education, astrology, and interfacing your wristwatch with your computer.

Where, you ask, do you find this weirdware? There is a handy appendix in the back of the book that gives the names, addresses and phone numbers for the companies who can provide these unusual software gems.

I Didn't Know You Could Do THAT With A Computer is published by Compute! Books Publications and retails for $14.95.

REAL GAMERS . . .

Space Trading Revisited

by Robert J. Sodaro

It isn't fair I tell you, it just isn't fair. It seems that every time I think it's safe to return to my 64 these days I owe *The Guide* an installment on this column. How did I get talked into this? Pumping out a reasonably coherent and interesting pile of words every couple of weeks or so is too hard a grind for this fun-loving kind of guy.

But enough of this silliness, let's get into some serious reviewing . . . Humm, this stuff looks good, and here's a nice product, oh, this one's a piece of trash, and this one is . . . Oh, sorry, I forgot you all were listening. You folks want to know what's going on, don't you? Well here's the lowdown, so settle back and let me spin my wheels for a few minutes.

Imperium Galactica

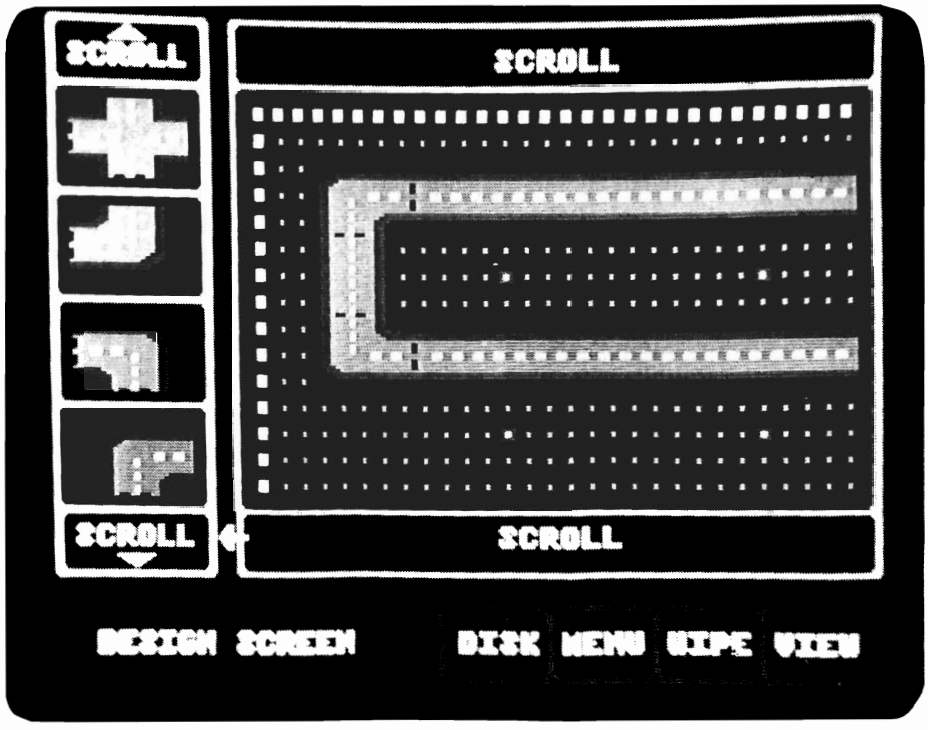
First up is a golden oldie that I recently rediscovered, dusted off, and have been playing. It's Imperium Galactica by Strategic Simulations, Inc. ($39.95, C-64/128, SSI). Long before the invention of video games, when I was but knee-high to a microchip, I used to while away my time playing these non-electronic board games.

Unavoidable aside: even prior to that, my friends and I played a game called Battleship. This was played — believe it or not — with a pen (or pencil) and a piece of paper. We would draw out a 10×10 square with little squares inside it. Inside this we colored in groups of squares to represent the various ships, five in all, ranging from one or two squares for a sub to six for a carrier. Several years later, electronics were introduced into the game, and it now sells in toy stores for close to 30 bucks. Progress.

But I digress. One of my favorite board games in those halcyon days was Parker Brothers' strategy game Risk™. The game was played by 2–6 players, and the object was to kill all opposing players, and rule the world. And they claim that computer games are violent.

In the passing years, I have (unfortunately) left behind my board games and now do most of my gaming with electronic ghosts on a cathode ray tube. But I never quite found a game that lived up to the early excitement of Risk™.

SSI has managed to recreate the same edge-of-your-seat excite-



Race course construction screen lets players design their own Fast Tracks courses.

ment that I used to experience with Risk™; only now, the stakes have been upped to a stellar level. Here again the rules are so simplistic as to be insulting — kill everything that moves and own the rest. However, nothing is so easy as to be that simple. In addition to the regular book of rules, agreements struck in smoked-filled rooms play a major part of this game.

Imperium Galactica is designed for one to four players with the computer rounding out the contingent to four if that is your wish. Since I've already defined my audience as being only passingly literate (Real Gamers . . . , and all that) you'll all probably attempt to dive headlong into this baby. To those few who are foolhardy enough to attempt that route, I have but one word of caution . . . *Don't!* I did and found myself utterly lost within minutes of boot-up.

Do yourself a favor. Spend a couple of minutes with the printed matter that's packed with the disk. You'll save yourself many headaches.

Game play is conducted in various stages with options to attack a planet or space-side flotilla, build up defenses, develop a planet's resources, or move to a new sector of space. You will even be allowed to cast about for allies among the other players. Don't be swayed by early deals, though. Just as in real life, old drinking buddies can be blown off if the grass looks greener elsewhere.

One of the best features of Imperium is that games can be saved to disk. I recall games of Risk™ that went on for weeks with the board always ready. So if risk is your business, then you should take a gander at this one from SSI.

Fast Tracks

Another product I've been enjoying is Activision's roadrace game Fast Tracks. I'm not a big fan of driving games, as a matter of fact they tend to bore me to tears. But this one is different. Not so much because of the racing itself, but because of the "bells and whistles". You see, here you actually get to build the raceway of your dreams. That's right, boys and girls, you are not only the racer, but the designer of the track as well.

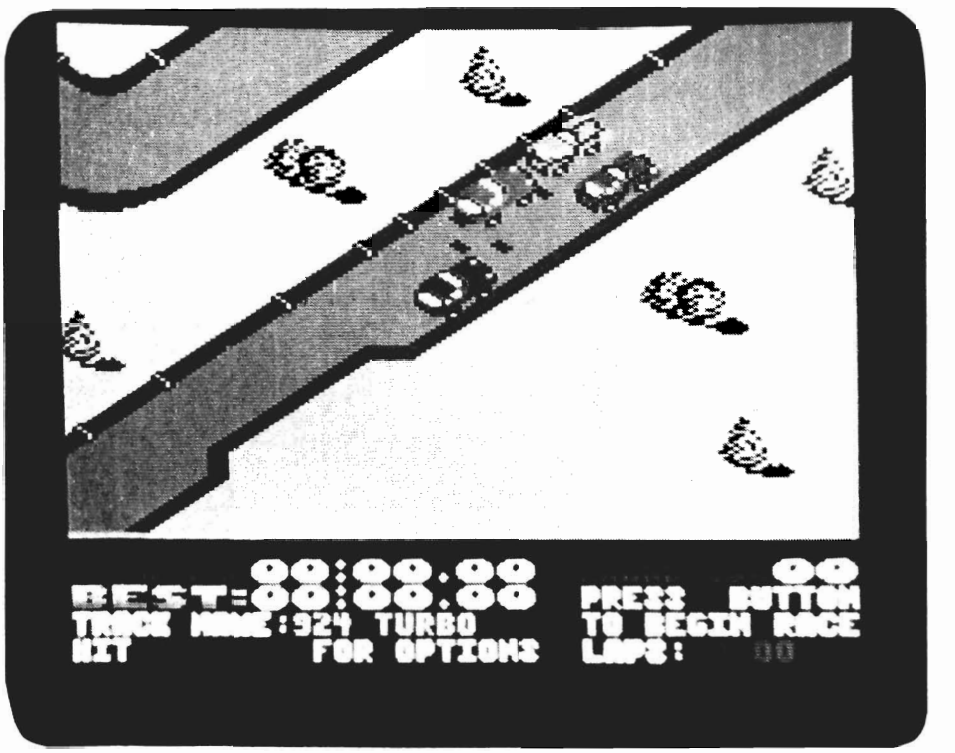
The construction kit portion of the game allows you to set up all the curves, straightaways, etc., and then move them around to your heart's content. An additional disk is provided for storage of your race tracks. Six tracks are provided, with each disk capable of accepting another six.

For me — my bias having already been stated — creating the track was more fun than the race itself. Included with the sections are some "special" tracks that allow you to create some truly interesting courses. These include switching tracks, overpasses and underpasses, crossroads, oil slicks, and squeeze tracks. Track can even be stretched to fit odd areas.

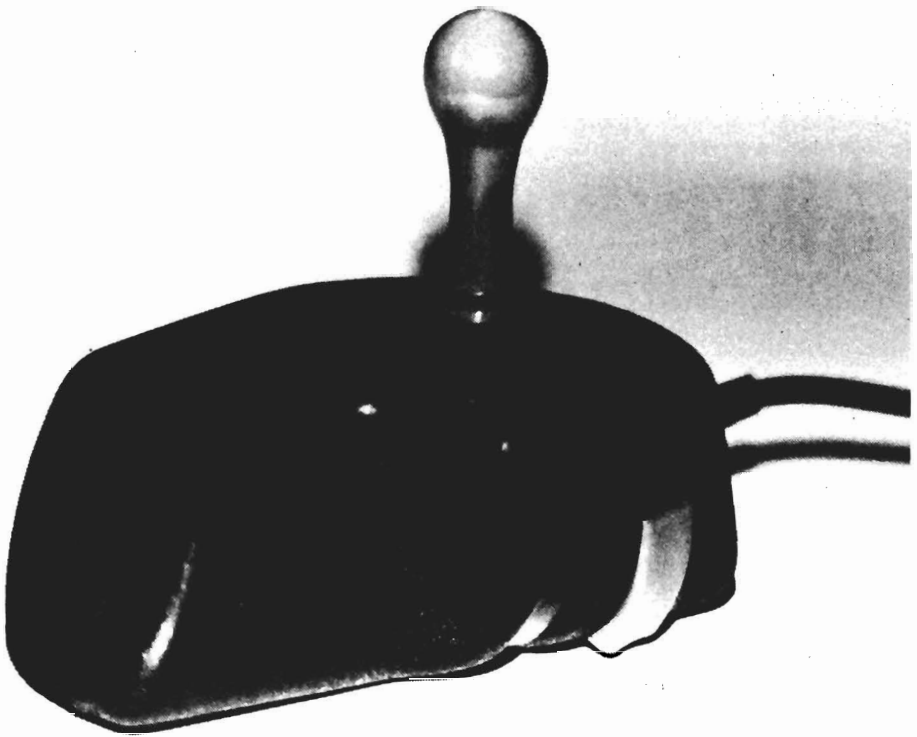
However, care must be taken when laying the track so that your raceway a.) forms a complete circuit, and b.) allows you to access all the roadway. Since this is a slot car road race, you don't have to steer your car, it will turn of its own accord. Thus, it is possible to place the track in such a way so as to make certain portions of the road inaccessible to your car. Also, building the track takes a bit of care and a light touch on the joystick. You can spend several minutes (and I did) attempting to line up two sections of track.

Mind Mirror

Then, of course, there is Mind Mirror from Electronic Arts. As I've mentioned, Mind Mirror was developed by Dr. Timothy Leary, and it, too, is a great product. More than just a game, it can also serve as a utility, business software, or even clinical research. This product does it all except wind up the cat and put out the clock; and more than that, it's fun to play.



Slot cars crowd together in fast-paced Fast Tracks action.



At its foundation, Mind Mirror is a true psychoanalytical tool akin to the psychological tests now being done across the country.

When speaking of Dr. Leary, it is important to note that, prior to being shoved into the psychedelic limelight of the 60's by the media, he attained his degree in psychology and performed a goodly amount of research in psychological testing, developing quite a number of tests for the field.

Mind Mirror is based on the psychometrics and measurements of behavior that Leary did back in 1950. Of course, back then he was using pencil and paper tests.

The software does more than just speed things up. It allows users to get a closer look at themselves, by bringing these tools into their homes and putting them in front of their own "electronic fireplaces". According to Leary, most people don't sit around and discuss their pictures of each other; but with Mind Mirror they will bounce their thoughts off it, and wind up talking to each other. More than just a parlor game, Mind Mirror has real applications.

The software has a section that allows the user to plot both their ideal and actual selves and then display the results on a chart so that they can determine how far from the mark they are and how to bring their ideal and actual selves closer together. By retaining their old scores and comparing them to later ones, the individual can determine if he is getting closer to or further from his ideal self. Users will also be able to chart and compare old and present lovers, and historic and presentday figures.

Another aspect of Mind Mirror is the gameplay found in the life simulation exercises. Here, the user can chart his course from either a sperm or an egg, through conception and birth. He can experience his first day on the bottle, and his school days from grade school up through high school or college.

He can see if he has the aptitude to be a movie star or to have a career in literature. At the conclusion of the life experience module the user will be able to attend a number of parties occurring in a "Playboy" mansion, or a stuffy banker's club. He can even get in a welfare soup line.

This product probably isn't for everyone; but it should be. It is one of the most innovative software products ever to come out of home computing.

Epyx 500XJ Joystick

To return to a subject a little closer to the heart of the true gamer, let's talk briefly about the newest joystick to come down the pike in a long time. Yeah, yeah, I can hear the skeptic out there already, "You've seen one joystick, you've seen them all." Not so, Beta-breath. This one is very different.

This unit, called the Epyx 500XJ, is compatible with the Commodore 64/128, the VIC-20, the Amiga, and all Atari computers, including the ST and Atari game machines.

It is form-fitted to be held in the user's left hand, with the J-stick itself maneuvered by the right. The fire-button is operated with the left index finger.

The 500XJ comes with a — get this — five-year guarantee. As a matter of fact, I've been assured that this translates into over 10 million shots. Go ahead boys and girls, count 'em, I double-dog dare you. Its five controller microswitches and solid steel shaft enable you to fire faster and toggle it better than other sticks, giving you more precise control and higher scores.

Slated for release early this fall, this peripheral from our friends at Epyx is definitely worth a look-see.

■

DR. TIMOTHY LEARY:

Quantum Jumps, Your Commodore And You

by Dr. Timothy Leary

This essay attempts to demonstrate that the personal computer is a philosophic appliance which allows the individual to operate in the Quantum-Information Age.

First, let's de-mystify the word "Quantum" by consulting the dictionary.

"**Quantum:** The quantity or amount of something; an indivisible unit of energy; the particle mediating a specific type of elemental interaction."

Further perusal of our dictionary yields the following definitions, which are perhaps more useful to our purpose:

"**Quantum Jump:** Any abrupt change or step, especially in knowledge or information."

"**Commodore:** The commander of a pleasure craft, or a recreational yacht club."

A Universe of User-Friendly Bits and Bytes

The great philosophic achievement of the 20th century was the discovery, made by nuclear and quantum physicists around 1900, that the visible-tangible reality is written in BASIC. We seem to inhabit a universe made up of a small numberof elements-particles-bits which cluster together in geometrically-logical temporary-configurations.

The solid Newtonian Universe involving such immutable concepts as mass, force, momentum and inertia, all bound into a Manichean drama involving equal reactions of good vs evil, gravity vs levity, and entropy vs evolution, was coerced by such pious Bank-of-America notions as conservation of energy. This General Motors universe, which was dependable, dull and predictable, suddenly, in the hands of Einstein/Planck, became digitized, transformed into shimmering quantum screens of electronic probabilities.

Up here in 1986, you, Commodore, commander of an electronic yacht, model 64 or 128, can navigate in a reality of which Neils Bohr and Werner Heisenberg could only dream. It turns out that the universe described in their psychedelic equations is best understood as a Super-Main Frame information processor with sub-programs and temporary ROM states, macros called galaxies, stars; minis called planets; micros called organisms; meta-micros known as molecules, atoms, particles; and, last, but not least, micros called Commodores.

It seems to follow that the great technological challenge of the 20th century was to produce an inexpensive appliance which would make the universe "user friendly", which would allow the individual human who has reached the rank of Commodore to digitize, store, process, reflect the sub-programs which make up his/her own personal realities.

So, dear Commodore, murmur the word Einstein, put your hand reverently on your model 64 and give it an admiring pat. Your modest, faithful, devoted micro is an evolutionary celebrity! It may be an advance as important as the opposable thumb, face-to-face love-making, the Model-T Ford, the printing press! Owning it defines you as member of a new breed — post-industrial, post-biological, post-human — because your humble VM (Volks-Micro) permits you to think and act in terms of clusters of electrons. It allows you, a part-time Commodore to cruise around in the post-Newtonian information ocean, to think and communicate in the lingua franca of the universe, the binary dialect of atoms and galaxies.

Your Commodore Is A Philosophic Appliance Conceived By Quantum Physicists

The chain of events that elevated you to this new genetic status, HOMO SAPIENS ELECTRONICUS, began around the turn of the century.

Physicists, we recall, are traditionally assigned the task of sorting out the nature of reality. So it was Einstein, Planck, Heisenberg, Bohr *et al* who figured out that the units of energy/matter were sub-atomic particles which zoom around in clouds of ever-changing, off/on, 0/1 yin/yang probabilities.

Einstein and the quantum physicists digitized our universe, reduced our solid realities into clusters of pixels, into recursive stairways of Godel-Escher-Bach paradox.

When they started, no one understood what these guys were talking about. They expressed their unsettling theories in complex equations written on blackboards with chalk. Believe it or not, these great physicists thought and communicated with a neolithic tool — chalk-marks on the wall of the cave. The paradox was this: Einstein and his brilliant colleagues could not experience or operate or communicate at a quantum-electronic level. In a sense they were idiot savants, able to produce equations about relativity without being able to maintain at the personal level a clear, accurate, conscious relationship with self or others.

Imagine if Max Planck paddling around in his chalkboard skin-canoe had access to a video-arcade game! He'd see right away that the blips on Centipede and the zaps of Space Invaders could represent the movement of the particles that he tried to describe in dusty symbols on his blackboard.

Now let us reflect on the head-aching adjustment required here. The universe described by Einstein and the nuclear physicists is alien and terrifying. Quantum physics is quite literally a wild (!) acid trip. It postulates an hallucinatory Alice-in-Wonderland universe in which everything is changing. As Heisenberg said, "nothing is certain except uncertainty". Matter is energy. Energy is matter at various forms of acceleration. Particles dissolve into waves. There is no up or down in a 4-dimensional movie. It all depends on your attitude, *i.e.* your angle of approach.

In 1910, the appliance we call the universe was not user friendly and there was no hands-on manual of operations. No wonder people felt helpless and superstitious. People living in the solid, mechanical world of 1910 could no more understand or experience an Einsteinian universe than could Queen Victoria levitate or could fish read and write English. Einstein was denounced as evil and immoral by Catholic bishops and sober theologians who sensed how unsettling and revolutionary these new ideas could be.

"Your modest, faithful, devoted micro is an evolutionary celebrity . . ."

Artists, Writers and Entertainers Got People Prepared For The Commodore Fleet

In retrospect we can see that the first 75 years of the 20th century was devoted to preparing, training, initiating human beings to talk in quantum-speak, *i.e.* to think and act at an entirely different level — in terms of digital clusters.

The task of preparing human culture for new realities has traditionally been performed by tribal-communicators called artists, entertainers, performers.

When Greek philosphers came up with notions of humanism, individuality and liberty, it was the painters/sculptors of Athens who produced the commercial logos, the naked statues of durvy Venus and sleek Mercury and the other randy Olympian Gods.

When the feudal, anti-human, monotheisms (Christian-Islamic) took over it was the weirdo-monks who produced the commercial artwork of the middle-ages. God as a bearded king swathed in robes. Madonnas and Bleeding Saints and crucified Jesuses, wall-to-wall anguished martyrs. These advertising logos were necessary, of course, to convince the serfs to submit to the All Powerful Lord. You certainly can't run a kingdom or empire with bishops, popes, cardinals, abbots and chancellors of the exchequer joyously running around bare-assed like Athenian pantheists.

The Renaissance (14th–16th centuries) was a humanist revival preparing Europeans for the Industrial Age. When Gutenberg invented the cheap, portable, rag-and-glue home computer, individuals had to be encouraged to read and write and "Do it yourself!" So, off came the clothes! Michangelo erected a statue of David, naked as a jaybird in the main square of Florence, Italy. Why David? He was the young, punk kid who stood up against Goliath, the hired Rambo hit-man of the empire.

With this historical perspective we can see that the first half of the 20th century (1900-1946) produced an avalanche of artistic, literary, musical and entertainment movements, all of which shared the same goal: to strip off the robes and uniforms; to dissolve our blind faith in static structure; to loosen up the rigidities of the industrial culture; to prepare us to deal with paradox, with altered states of perception, with multi-dimensional definitions of nature; to make quantum reality comfortable, manageable, homey, livable. To get you, Commodore, to feel at home bouncing electrons around your computer screen.

Digital Art

In Modern Art we saw the emergence of schools which dissolved reality-representation in-

to a variety of subjective, relativistic attitudes. IMPRESSIONISTS used random spots of color and brush-strokes, converting matter to reflected light waves . . . Seurat and the POINTILLISTES actually painted in pixels.

EXPRESSIONISM offered a quantum reality that was almost totally spontaneous. CUBISM sought to portray common objects in planes and volumes reflecting the underlying geometric structure of matter, thus directly illustrating the new physics. The DADA and COLLAGE movements broke up material reality into diverse bits and bytes.

SURREALISM produced a slick, smooth-plastic fake-reality that was later perfected by Sony. I have heard electronic anthropologists (not Seymore Papert or Alan Kay or Marvin Minsky, I regret to say) argue that Dali's graphic about the PERSISTENCE OF MEMORY (the dripping watches) created modern Japanese culture which no one can deny is ultimately surreal.

These avant garde aesthetic experiments were quickly incorporated into pop art, advertising, industrial design. Good! Society was learning to live with with the shifting-screen perspectives and pixillated representations of the universe which had been predicted by the equations of the quantum physicists.

When the Coca-Cola company uses the digitized face of Max Headroom as it's current logo, you know that America is comfortable living in a quantum universe.

Hacking Away At The Word Line

These same aesthetic trends appeared in English Literature. Next time you boot-up your Commodore, breath a word of gratitude to George Bernard Shaw, William Butler Yeats, Sam Beckett, T. S. Eliot, Ezra Pound, Aldous Huxley, George Orwell — all of whom succeeded in loosening social, political, religious linearities and encouraged subjectivity and innovative reprogramming of reality.

The most influential literary work of this period (1900-1946) was produced by James Joyce. In *Ulysses* and *Finnegan's Wake*, Joyce fissioned and sliced the grammatical structure of language into thought-bytes. Joyce was not a writer he was a word-processor, a proto-hacker, reducing ideas to elemental units and endlessly recombining them at will. Joyce programmed reality using his own basic-language, a quantum-linguistic which allowed him to assemble and re-assemble thoughts into fugal, repetitious, contrapuntal patterns.

Imagine what James Joyce could have done with a Word Star or a modern database! Well, we don't have to wonder — he actually managed to do it using his own brain-ware.

JAZZ

The most effective pre-computer rendition of quantum-digital art was to be found in a certain low-life-high-tech style of spontaneous, cool, subjective, improvisational sound-waves produced by a small group of Black audio-engineers. Jazz suddenly popped up at the height of the industrial age eroding its linear values and non-interactive styles. A factory-society demands regularity, dependability, replicability, predictability, conformity. There is no room for improvisation or syncopated individuality on a Newtonian assembly line. So, it was left to the Blacks, who never really bought the factory culture, to get us boogying into the post-industrial Quantum Age. Needless to say, the moralists instinctively denounced Jazz as low-life and vaguely sinful.

Radio Was A Great Help

The most important factor in preparing a society of assembly-line-workers and factory-managers for the Quantum-Information Age was the invention of a user-friendly electronic appliance called radio.

Radio is the communication of audible signals, such as words or music, encoded in electromanetic waves. Radio allows us to package and transmit ideas into digital patterns. The first use of "wireless" was by government, military and business. But within one generation the home micro-radio allowed the individual to turn-on and tune-in a range of realities.

When Farmer Jones learned how to select stations by moving the dial he had taken the first hands-on step towards the information age. By 1936 the comforting sounds of Amos and Andy and swing music had prepared human beings for the magic of quantum-electronic communication.

". . . Joyce was not a writer he was a word-processor . . . reducing ideas to elemental units and endlessly recombining them at will . . ."

The Movies Projected Realities Onto Screens

The next step in creating an electronic-computer culture was a big one. Light waves passed through celluloid frames projected life-like images on screens producing a new level of reality that transformed human thought and communication.

It was a big step when computer designers decided to output data on screens instead of those old green/white Gutenberg printouts. The silent movies made this innovation possible. It is, perhaps, no accident that IBM uses the lovable, irresistable icon of the Little Tramp in its commercials.

The next time you direct your hypnotized eyeballs toward your lit-up terminal, remember that it was Cheerful Charlie Chaplin who first accustomed our species to accept the implausible quantum-reality of electrical impulses flashing on a flat screen.

Television Brought The Language Of Electrons Into Our Homes

World War II was the first (and hopefully the last) high-tech war. It was fought on electronic screens. Radar. Sonar. It was won by Alan Turing, the father of AI, who used primitive computers to crack the German codes.

As soon as the war was over, these new technologies became available for civilian use. There is simply no way that we, a culture of television addicts, can comprehend or appreciate the changes in human psychology brought about by the boob-tube.

The average American spends more time per week watching TV than in any other activity. Pixels dancing on a screen are the central reality. People spend more time gazing at electrons than they do gazing into the eyes of their loved ones, gazing into books, scanning other aspects of material reality. Talk about applied meta-physics! ELECTRONIC REALITY IS MORE REAL THAN THE PHYSICAL WORLD! This is a profound evolutionary leap! It can be compared to the jump from ocean to shoreline, when land and air suddenly become more real to the ex-fish than water!

". . . the task of preparing human culture for new realities has traditionally been performed by tribal communicators called artists, entertainers, performers . . ."

Television Passivity

The first generations of television-watching produced a nation of "vidiots", passive amoeboids sprawled in front of the feeding-screen sucking up information. Giant networks controlled the airwaves, hawking commercial products and packaged politics like carnival-snake-oil salesmen.

Perceptive observers realized that Orwell's nightmare of a Big Brother society was too optimistic. You remember that in the book 1984, the authoritarian state used TV to spy on citizens. The actuality is much worse: citizens dociley, voluntarily lining themselves up in front of the authority-box, enjoying the lethal neurological fast food dished out in technicolor by Newspeak.

Visionary prophets like Marshall McLuhan understood what was happening. He said, "The medium is the message." Never mind about the junk on the screen. That will change and improve. The point is that people are receiving signals on the screen. McLuhan knew that the new technology would create the new language when the time was ripe, *i.e.* when society had been prepared to take this quantum leap.

Computer Passivity

The first generations of computer-users similarly did not understand the nature of the quantum revolution. Top management saw computers as Invaluable Business Machines(™). Computers simply produced higher efficiency by replacing muscular-factory-clerical labor.

And the rest of us, recognizing that computers in the hands of the managers, would increase their power to manipulate and control us, developed a fear and loathing of computers.

Some sociologists with paranoid-survival tendencies have speculated that this phobic revulsion against electronic communication shared by millions of college-educated, liberal, book-readers was deliberately created by Counter Intelligence Authorities(™) whose control would be eroded by widespread electronic literacy. The plot thus thickens!

In the next episode of this adventure-serial we shall see how a merry Robin Hood band of beatniks, hippies, acid-heads, rock 'n rollers, hackers, code-cowboys, cyber-punks and electronic visionaries rode into Silicon Valley and foiled the great brain robbery using the great equalizer, the home-computer.

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AMIGA MONTHLY:

DOS — What You Don't Know About It Won't Help You

by Bob Lindstrom

Not since Agatha Christie has there been a more mystifying piece of writing than the Amiga owner's manual, "Introduction to Amiga." Instead of a who-dunnit, Amiga owners get a how-do-it? that tantalizes you with the power of the machine without giving any hint of how to get to that power. And in this mystery, AmigaDOS remains the culprit who is constantly slinking out of sight.

But out of mind? No way. At least not if you want to do something useful with the Amiga. You know. Little things. Things like getting a complete directory of a disk, or listing the size of files, or figuring out where that download file is when it doesn't have an icon. Useful as it is, Workbench doesn't quite cut it when it comes time for heavy-duty (or even moderate-duty) file management. Then, it's time for AmigaDOS and a CLI (command line interface) window.

And there's where the Introduction to Amiga gets mysterious. CLI? What's that? This comic book for raw beginners almost completely neglects CLI, one of the features that gives the Amiga its uniquely versatile personality. Oh yes, 7-4 in the manual (no lie, look it up) does have one paragraph that explains how to open a CLI window but,

after that, the best advice they provide is, "See the AmigaDOS User's Manual." (Tack another $24.95 onto the Amiga purchase price. I recommend it as a more-than-worthwhile expense. It's published by Bantam Books as *The AmigaDOS Manual.*)

Aside from that single paragraph, there is no further information on how to use CLI or what to do there. It's like taking a kid to Disneyland without telling him to go on the rides.

Eventually, of course, we end up going to a users' group and finding out from a helpful Amiga mavin how to use the DIR command or how to FORMAT a disk or how to DISKCOPY and maybe how to ED text files. (The Amiga has a decent "built-in" word processor in ED, but you'll never find out about it from Commodore. Ssshhh.)

If you are still in the dark about those commands, get a list of them all by getting into CLI and typing **DIR C**. You'll get a directory of all the DOS commands. Then get a listing of the command formats by typing **[Command name] ?** — such as **FORMAT ?**. The Amiga will show you the correct format for that command. Sometimes it will be confusing but it does give you a place to start experimenting, at least until you pungle up the 25 bills for the DOS manual (I still recommend it).

However, don't stop with DIR and FORMAT and COPY. Though not the easiest DOS ever designed, AmigaDOS has a lot of slick tricks up its directory and here are a handy few of them:

DIR OPT A or I

The DIR command will give you a listing of all the subdirectories on a disk and, if you specify a single subdirectory — such as DIR S — you can see all the files contained in S. However, if you want a comprehensive run-down on all the files in all directories, use **DIR OPT A**. The Amiga will spit out the names of every last file in every subdirectory on the disk.

For a more selective listing, choose the interactive DIR mode by typing **DIR OPT I**. The Amiga will prompt you for a response at the beginning of every subdirectory. At the prompt, type **E** if you want to enter the subdirectory and see all the filenames. Just punch **[RETURN]** to move on to the next subdirectory.

Once inside a subdirectory, type **B** at the prompt to return to the previous directory level or **T** to have the Amiga TYPE the file to the screen. (When you've seen enough, interrupt the typing with a **CTRL-C**. Or you can delete a file by typing the three letters **DEL** at the prompt.

Combine both commands — **DIR OPT AI** — and you'll be shown the name of every file in every subdirectory and be prompted for a response on each one.

And if you want to fire off a directory to your printer, use **DIR > PRT:** or, for the A option, **DIR > PRT: OPT A**.

LIST

When you need something a little more substantial and informative than a rundown on filenames, **LIST** is your command. It will provide an unsorted list of all files on the disk along with their size in bytes, protection status, date and time created, and any COMMENTS attached. A typical listing looks like this:

```
popclock    8488 --
-- 01-Aug-86 12:55:10
```

This tells us that "popclock" is 8488 bytes long; the four dashes indicate that the file is protected; and it was created August 1, 1986 just before 1 pm.

LIST also has several options. Here are the more useful ones:

LIST [filename] TO [device] will send the directory listing to the device of your choice. Typically, you'll use **LIST [filename] TO PRT:** to send a directory listing to your printer.

LIST NODATES omits dates and times from the directory listing.

LIST SINCE [date] displays all files created or altered after a specific date. As an example, **LIST SINCE 04-Jul-86** shows all files created after the Fourth of July. You must follow the date entry format: dd-mmm-yy — 04-jul-86.

LIST UPTO [date] displays all files created or altered up to a specific date as in: **LIST UPTO 04-jul-86**.

"... out of mind? ... not if you want to do something useful with the Amiga ... little things like getting a complete directory of a disk, or listing the size of files ..."

RUN

From time to time while typing a file to the printer or sorting a file or running some specialized application, you'll want to continue on another project while that project is in progress. You can use the NEWCLI command to open an additional CLI window; but, inevitably, you'll get a project started before realizing that you're

out of CLI windows. And then it's too late to open another, unless you can go back to the Workbench and open the CLI icon.

It's much easier to get in the habit of using the RUN command when starting up programs in CLI. RUN opens a new CLI window and starts up the operation in the new window. For example, **RUN DIR > PRT: OPT A** will open a CLI window, start spooling a directory listing to your printer and still leave the current CLI window free for you to continue your work. When the task is completed, the CLI window automatically is closed. Pretty neat.

DATE

Without this command, updating the date in your Amiga can be a real drag. Go to the Workbench, click open your boot-up disk, click open Preferences, change the date and the time, save the results and leave Preferences, click the disk closed.

Forget it. Go to CLI and enter: **DATE hh:mm dd-mmm-yy** or, more specifically, **DATE 12:45 01-nov-86**. The Amiga updates its internal clock calendar and you're in business without even getting near the Workbench. Just remember that the Amiga uses a 24-hour clock.

To read back the day and time, just type **DATE** and the computer prints out the current time and day.

FILENOTE, COMMENT

Just so you don't forget what a file was for, the Amiga allows you to attach a comment of up to 80 characters to the name of any file. The format is: **FILENOTE [filename] COMMENT "whatever you want to say"**. For instance, **FILENOTE confusingwords COMMENT "This file makes the Amiga recite the entire Introduction to Amiga manual"**. The resulting comments are displayed whenever you LIST a disk directory. However, the comments do not travel with a file when it is copied to a new location.

PROTECT, UNPROTECT

No surprise here. These commands can keep your file from being deleted accidentally. **PROTECT [filename]** protects the file from deletion or alteration and **UNPROTECT** restores it to "fair game" do-what-you-will status. When you try to delete or change a protected file, the Amiga refuses. However, beware of using ED on protected text files. ED ignores protect flags and it is possible to alter a file and resave it with ED despite its protected status.

So, there you go, a few more tricks in your Amiga bag.

MINDWALKER

The long-awaited Mind Walker has been out for sometime and, if you haven't seen it, take a look at your nearest Amiga dealer. Programmer Bill Williams, the undisputed sound know-it-all on the Atari eight-bit computers, has put together a stunning first-generation use of Amiga's sound and graphics.

But what was Bill ingesting when he designed this game? (Just joking, Bill, ha ha, chuckle, chuckle, no lawsuits please.) You control a shape-changing creature who must alter his form under pyramids, trace a continuous path to another dimension and then track down fragments of intelligence called mind shards. Then, the spirit of Sigmund Freud blows smoke at a psychedelic display in order to help you solve a puzzle. And what about those big human hands that grab a green square while flying down pulsating tunnels?

Too bad software packaging has gotten so sophisticated recently. This is one that could fittingly be sold in a plastic bag, just like other strange and bizarre substances.

Seriously, Mind Walker is fun to play, even if it dances to a different drummer, namely one that's beating a wild tattoo in The Twilight Zone.

". . . missing from the Amiga version is the attention to detail that made the C-64 Computer People so endearing . . ."

CINEMAWARE UPDATE

And what is Bill Williams up to now? Well, he is designing his magnum opus and he's doing it on our favorite computer. Williams' next game, to be published by Cinemaware (watch for a feature story in an upcoming issue), is "Sinbad and the Throne of the Falcon."

Though most games these days are put together by a creative team of programmers, designers, graphic artists and marketing executives, Williams is going it alone with "Sinbad," designing graphics, composing music, executing the animation, crunching the code. The kicker is that this one-man effort has ballooned to some 2.5 megabytes (yes, that's two and a half million bytes) of programming.

Not a man to rush a project that seems destined for success, Cinemaware producer Bob Jacob, who expected to publish "Sinbad" in October, has alloted Williams another two months to complete the project.

In the meantime, Jacob is determined to release Cinemaware's first Amiga title, "Defender of the Crown," on schedule in mid-October. To make that happen, the company has hired R.J. Mical, the programmer of Amiga Intuition, to finish the game which is being designed by former Epyx staffer Kellyn Beeck.

Not to be outdone by "Sinbad," "Defender" also has expanded to fill two Amiga disks, nearly two megabytes of code, according to inside sources. Makes you wonder how we ever settled for those C-64 cartridge games, doesn't it?

If you're not holding your breath waiting for this game, stop breathing *now*. Previews I've seen of the "Defender" graphics and animation are breathtaking and suggest that this new company may actually realize Jacob's intention of "producing the best Amiga game ever."

LITTLE COMPUTER PEOPLE

Doesn't Activision have someone on deck who knows how to make the Amiga jump through hoops? That company's The Music Studio was a disappointment with few bells and whistles specifically for the Amiga. Instead of the ear-tickling audibles of, say, Electronic Arts' Instant Music, Activision's The Music Studio settled for routine computer-common voicings. And why can't we mix and match instruments instead of struggling with an ironclad complement of 15 sounds?

Always the optimists, we looked past The Music Studio and onward and upward toward Little Computer People — the Little Computer People Discovery Kit is the official (lengthy) title of the program.

I'm sorry to say it brings more disappointments. Yes, the house features *much* improved graphics over the C-64 version. We wouldn't expect any the less of the Amiga. And yes, the music files are longer, though, once again, we get routine computer sounds instead of the novel digitized sounds of which the Amiga is capable.

What is missing from the Amiga version is the attention to detail that made the C-64 computer people so endearing. There is no sonic differentiation, for instance, when your Amiga LCP walks on a rug or on the linoleum floor. His voice is just a repeating loop. He plays more games; but, my LCP takes his Blackjack deck into the kitchen, sits down prepared to deal, instantly declares himself a winner and goes back upstairs. Is that a cheat or a bug?

". . . The Amiga Little Computer People still is a delightful program . . . but with all the potential of this new computer, it's too bad that the C-64 version remains the classic. . . ."

The Amiga Little Computer People still is a delightful program if you've never enjoyed one of its other incarnations. But with all the potential of this new computer, it's too bad that the C-64 version remains the classic.

IN THE PUBLIC DOMAIN

Amiga owners can be justifiably proud of the high quality PD software available for the Amiga. ABasiC programmer David Addison, for instance, has executed a stunning version of Parker Bros.' Monopoly that has made the rounds.

This month, the PD prize goes to Amiga Hack, a graphic adaptation of the classic Unix game Hack (also published by Epyx as Rogue). With full-color graphics, mouse, pulldown menu and keyboard support and a dungeons-and-dragons variety that can kill a few hours or (gasp) weeks, Amiga Hack has all the depth and polish of the higher-priced (software) spread.

Congratulations to the Amiga Hack team: Jack Rouse, Gordon Keener, Doug Walker, Edmund Burnette, Mary Ellen Toebes and self-professed project mastermind John A. Toebes VIII.

■

BEGINNER'S CORNER:
The Disk: Part 2

by Mindy Skelton

In earlier Corners, we've pretty much established *what* a floppy disk is, how it's made and how to handle it. Now we're ready to look at how to take that little square of plastic and paper and actually use it to store and retrieve information.

When you first take a disk out of its box, it is *not* ready to use. Stick it in your drive as is and your machine will spit up (a technical term).

Why?

Because disk manufacturers have no idea which computer will be using their disk. So, they turn out nice, blank, unprepared disks and leave it to the user to do the finishing work.

And "blank disk" doesn't just mean without data, it also means without tracks, without directory, without i.d. or *anything*. It is now up to you to get your disk ready through a process called *formatting*.

You put your disk in your drive, issue a command for formatting then sit back and wait for the buzzing and humming to quit.

Great, but wouldn't you like to know what is happening during that noisy interlude?

During the formatting process the disk drive takes an empty disk and magnetically divides it into the 35 tracks your Commodore uses. Each of these tracks is further divided into *sectors* or *blocks*.

Many computer systems format a disk with the same number of tracks in every sector; but Commodore chose to vary the number of tracks according to the placement of the track on the disk. The longer outermost tracks (tracks 1 to 17) each contain 21 sectors. The next 7 tracks (18 to 24) hold 19 sectors. The next six tracks (24 to 30) have 18 sectors each. And the innermost tracks (31 to 35) are divided into 17 sectors.

If you're wondering what tracks and sectors means to you in everyday life, let me explain. Each sector on your disk can store 256 bytes of information. When you multiply this by the 683 sectors available, you come up with 174,848 bytes — approximately the 170K capacity of a Commodore disk. That is a *lot* of blocks and a lot of bytes to organize, but your computer is well up to the task and it all begins when you format a disk.

During formatting several things happen. First, a file directory is created on track 18 of the disk. Then an ID number is written to every block on the disk. This permits the formation of the *Block Allocation Map* or BAM (more in a moment).

The directory contains the disk name and I.D. number you assigned in the formatting command, followed by the ASCII code for the version of DOS used and the format type. (Ever wonder what that 2A stood for? That's it!) All together this information is

called the *disk header*, and is stored in block 0 of the directory on track 18. The rest of the directory contains the names of the files on the disk (up to a maximum of 144 files), the type of file (SEQ, PRG, REL or USR), and the BAM. The directory is not static. It is updated every time you SAVE or SCRATCH a program, or when a file is opened.

The BAM is the means by which the drive keeps track of the existence and location of space on the disk. The BAM could be graphically depicted as a series of boxes: one box for each of the disk blocks. When the disk is formatted, each box contains a 1, indicating that the block is available for use. Once the block is used, the box holds a 0, indicating the block is not available.

The BAM is updated when you SAVE or SCRATCH a program or when a file is closed. The DOS stores the BAM in its memory (remember, your drive is intelligent) along with its associated ID number. Before the DOS writes to the disk, it checks to make sure the ID number matches.

If you've changed disks since the last time you wrote to the disk, and the ID numbers are different, you'll generate an error; but no great harm will be done. If however, you have not used unique ID numbers, your DOS won't know you've changed disks and you could overwrite (wipe out) information. A word to the wise; use unique ID numbers on all your disks.

A Tale of Two Drives

Last time we also talked about single versus double-sided disks. Now we are going to look at two different kinds of drives.

The 1541 we all know and love(?) is a *single sided* drive. It has a single read-write head, and accesses only one side of the disk. You can use both sides, but only by your physically flipping the disk.

For a long time this single-sided drive was the standard for home computers. With the 1571, we find a new system at work. Here the drive has two heads and can get to both sides of your disk without any action on your part. Using duel-head drive effectively doubles your disk space. It also means your BAM keeps track of available space on both sides of the disk and, since programs are saved not in a single block but wherever there is room, a single program may have pieces stored on both sides of the disk. This is one reason that 1571 floppy disks won't always work on a 1541.

Double-sided floppy disks are recommended for dual-head drives. You have to decide for yourself whether there is a difference between single- and double-sided disks.

Our final topic is cleaning. How often should one clean a drive, and how?

As you use your drive, the dust and dirt that have settled on your disk can get on the read-write heads. This build-up eventually can cause problems in reading to and from a disk. Manufacturers of drive cleaners claim you need to use their products weekly or monthly. I don't agree. Once a year or, at most, every six months should suffice unless you operate in an unusually dirty or smokey environment.

As to *how* to clean the heads, I would advise against abrasive-style cleaners unless you are in the habit of rubbing sandpaper over your read-write heads. When using liquid cleaners, be careful not to use too much liquid lest you soak cleaner into the pads on the heads. In high doses, this solvent can dissolve the coating on your disks. My personal favorite method is the use of alcohol and a cotton swab. Do as you will.

■

MACHINE LANGUAGE:

Bootstrapping the Goose

by David Michael McCormick

Turn your computer on and it says "READY" at you, blue-on-blue with cursor flashing, and waits for you to press a key. And that's comparatively difficult. With many personal computers you turn on the power, the drive spins, and icons appear. Take your pick! A long way from the rows of switches, the LED displays and the "ENTER" button of old — and far removed from the microprocessor chip that understands only the "on" and "off" of machine language. These days, people learn how to pet mice, not how to flip bits in memory.

Mice are not good teachers of machine language. We can get a lot closer to machine language by building our own mini CPU. We'll add some memory, get it running and then look at it using the C-64, not a soldering iron! We'll keep it simple — the simpler the better — because the most sophisticated and powerful computers today still have that same, simple "on" or "off" structure deep inside. They're all machines and work like machines, just faster than the kind you oil. But, for our machine, we'll keep it slow enough to watch.

In creating our computer, we will need space in the mini processor to put the data on which we will be working, an instruction set with which to work on the data, and some other space outside the processor for storing instructions and data.

As a concession to computer history, we'll call the workspace the "accumulator" and refer to it also as a "register."

To keep things simple, we'll make it only three characters wide. It will contain numeric values from −99 (three characters) to 999 or any combination of three letters or other characters.

Our instructions will include simple operations on three-character items of data. Instructions will be the same size as the accumulator, and will consist of a one-digit operation code ("op code" or "op") followed by a two-digit "address." This collection of instructions acting on a register is our CPU, the mini-processor proper, which we will call the C99 since 99 is as high as it can see.

The other space, for instructions and data storage, will be our "main memory," which will consist of 100 spaces numbered from 00 to 99. Each will also be three characters wide: big enough to hold an instruction, small enough to fit in the accumulator.

Now let's write our C99 instruction set: we can have ten instructions.

First, we need a way to move data from a main memory address to the accumulator, and another to go the other way. The "xx" stands for whatever address we might wish to use:

1xx moves the contents of xx to the accumulator.
2xx moves the contents of the accumulator to xx.

We need to perform simple arithmetic operations on the contents of the accumulator:

3xx adds the contents of xx to the contents of the accumulator and leaves the result in the accumulator.
4xx subtracts the contents of xx from the contents of the accumulator and leaves the result in the accumulator.

Note that "3xx" and "4xx" do *not* add or subtract "xx," but rather the contents of memory location "xx" — we cannot afford a complete range of options with only ten instructions and 100 memory spaces, these are "absolute address" instructions rather than the "immediate" type.

Now our CPU can move data to or from the accumulator, add, or subtract. Unfortunately, it can only perform one instruction: there is no way for it to move from one instruction to the next. We need a "program counter" to tell the miniprocessor where to get the next instruction to execute. This "register" needs to hold only two digits, but for the sake of simplicity and for "future expansion" we'll give it three.

It will work automatically, increasing by one every time it is used, so that the instructions are executed in sequence. But we'll also use it in our programs, to control movement through our program:

5xx puts "xx" in the program counter and eliminates the usual increment, and program execution resumes at "xx". This is an "unconditonal branch" or "jump to xx."

6xx tests the accumulator and branches to "xx" if the accumulator is zero. This is a "conditional branch" and allows for decision-making.

7xx branches to "xx" if the accumulator is negative or minus, another "conditional branch" instruction.

We need some input/output capacity, too. Here is a secret about computers: the keyboard and the screen are *not* part of the computer proper, which consists of the microprocessor and its associated memory. Nearly half of the C-64's operating system KERNAL deals with getting input from the keyboard and printing neatly on the screen; another section (nearly half) deals with access to the serial bus (disk drives and printers). Our C99 will use only the keyboard and the screen; but we are going to treat them as external devices, which they are. Our final "register" is therefore an input/output or "i/o" port.

We now have three on-board C99 registers: the accumulator (acc), the program counter (pc), and the input/output port (i/o). The i/o port will read data IN (from the keyboard) if the instruction digit is EVEN, and it will send data OUT (to the screen) if the instruction digit is ODD:

8xx reads input to "xx," and
9xx prints the contents of "xx."

We now have a complete computer. It can execute a program that moves stuff around in memory, adds, subtracts, and makes decisions. It can put data in and print data out. It can do everything but stop when the program is done. If we don't stop it, it might take over the galaxy. We need an END instruction. Fortunately, we have not yet used zero, which is appropriate for a do-nothing instruction:

0xx will END and shut down the CPU.

So we have our instruction set:

0xx END: shut down the CPU
1xx LOAD accumulator from xx
2xx STORE accumulator at xx
3xx ADD to accumulator from xx
4xx SUBTRACT contents of xx from acc
5xx JUMP unconditional to xx
6xx BRANCH if zero to xx
7xx BRANCH if minus to xx
8xx READ i/o port to xx
9xx PRINT contents of xx to i/o port

Other Machines

We've used one of our three digits to define the op code (10 op codes) and two to define 100 addresses in memory. Instead, we could link any memory location to the next, depending on how we "wire" the mini-processor to execute our instructions. Then we could use two digits for op codes (100 op codes), and the next digit, plus the next (linked) set of three digits added on, to define memory addresses 0 to 9999 (we'd need the fabled C-64 memory expansion cartridge).

One step further, and we could link any two or three successive memory locations, using the first for an op code from 000 through 999. Some op codes would read the second location for an address between 000 and 999, and some would read the second and third locations for an address between 1000 and 999999.

That's essentially what today's computers do. JSR $E716, which calls a subroutine to print a character to the C-64 screen, occupies three memory locations: the first holds the "JSR" and the next locations hold the target address. JMP ($A000), which the KERNAL uses to go to the BASIC ROM on power-up, occupies three spaces and tells the C-64 to JUMP to the address it finds in two more, $a000 and $a001 (40960–40961) — linking five memory locations together in a single instruction.

The Z-80 chip (there's one in the C-128, and you can get one to plug into the back of your C-64) has a complete instruction set of 256 instruction codes acting on thirteen registers and more. Like the 6510 in the C-64, it has yet to be fully utilized.

And we have a computer. We've defined it. We could have extended the definition of our computer in several ways (see box), but for now, let's deal with our simplified instruction set and short memory. We need some BASIC programming to set things up, to read the instructions we put in, and more to make our instructions work.

```
1 x$="[home][down13][lt grn]":b$="[space
]":r$="[rvs on]":o$="[rvs off]":g$=o$+b$
+r$:a$="000":z$=a$:cx=15
2 io$="[space3]:fort=0to12:bl$=bl$+io$:n
ext:te=65520:dima$(99):dimi$(9):for t=0t
o9
3 readi$(t):next:print"[shft-clr][ctrl-n
][ctrl-h]"x$"[up2][lt grn][cmdr-a][9 cmd
r-r][cmdr-s] [green][cmdr-a][17 cmdr-r][
cmdr-s] [cyan][cmdr-a][5 cmdr-r][cmdr-s]
"
4 print"[lt grn]acc  pc i/o [grn]current
 instruction [cyan]operand":poke53280,11
:poke53281,11
10 poke198,0:wait197,64,64:geti$:return
14 p=p+f:op=val(left$(a$(p),1)):ad=val(r
ight$(a$(p),2)):f=1:printx$r$a$g$;
15 printright$(z$+mid$(str$(p),2),3)g$io
$"[grn]"a$(p)mid$(i$(op),4,19)"[cyan] "a
d"[left] "
19 wait197,64,64:onop+1gosub20,22,23,24,
27,28,29,30,32,37:goto14
20 ifad=0thenprint"[up][cyan]":poke 198,
1:poke 631,19:end:data"0xx BOOT xx; END
if 00"
22 a$=a$(ad):return:data"1xx LOAD[spc2]a
ccumulator from xx"
23 a$(ad)=a$:return:data"2xx STORE accum
ulator at xx"
24 ac=val(a$)+val(a$(ad)):data"3xx ADD t
o accumulator from xx"
25 ifac>999orac<-99then ac=ac+1000*(ac>9
99)-100*(ac<-99):goto25
26 a$=right$(z$+mid$(str$(abs(ac)),2),3+
(ac<0)):a$=left$("-",-(ac<0))+a$:return
27 ac=val(a$)-val(a$(ad)):goto25:data"4x
x SUBTRACT contents of xx from acc"
28 p=ad:f=0:return:data"5xx JUMP uncondi
tional to xx"
29 ifval(a$)<>0thenreturn:data"6xx BRANC
H if zero to xx
30 p=p+(p-ad)*(op=6):f=-(op=7):ifval(a$)
>=0thenreturn
31 p=p+(p-ad)*(op=7):f=-(op=6):return:da
ta"7xx BRANCH if minus to xx"
32 printx$"[right8][white][rvs on][spc3]
[left3]";:io$="":data"8xx READ  i/o port
 to xx"
33 gosub10:in=asc(i$+chr$(0)):ifin<32ori
n>95orin=34goto33
34 printi$;:io$=io$+i$:on-(len(io$)<3)go
to33:print:on-(val(io$)>999)goto32
35 print"[grey3][rvs on] F1 [rvs off] to
 enter, [rvs on] F3 [rvs off] to correct
":gosub10:print"[up]"bl$"[up]"
36 on-(i$="[f3]")goto32:on-(i$<>"[f1]")g
oto35:a$(ad)=io$:return
37 io$=a$(ad):poke781,cx:poke782,cy:data
"9xx PRINT contents of xx to i/o port"
38 poke783,0:system:print"[rvs on][white
]"io$;:poke783,1:system:cy=peek(782)
39 cx=peek(781)-(cy>36):cy=cy+cy*(cy>36)
:cx=cx+10*(cx=25):return
```

Now this will work, with a "goto14" after line 4 to skip over the subroutine. But the C99 will immediately shut down! The register display will show why. The mini-processor goes looking for an instruction, finds a nothing, and executes our nothing instruction, END. Thus far, except for the register display, you can't watch it work — which runs counter to our whole purpose.

So first, we'll take into consideration that this is a learning tool, designed to show how a microprocessor operates under the control of a machine language program. We're going to add to this "operating system" a Graphics Oriented Operating System Extension that will display our main memory, registers, current instruction and operand and the instruction set. And we will now call our mini-processor The Goose.

```
5 y$="[grey 3]":fort=1to36:y$=y$+"[right
]":next:forr=0to99:a$(r)=a$:gosub11:next
:r=0
6 printx$r$"[cyan]bl$:print"[dwn2]Welcom
e to [dwn2][yellow][11 cmdr-a][left11][d
][rvs on] THE GOOSE[spc]
7 print"[down3][cyan][rvs on] y [rvs off
] for instruction set":print"[grey3]Any
key boots the goose"x$"[dwn][grey2]"
8 gosub10:fort=0to9:printbl$"[up]":on-(i
$<>"y"goto9:printi$(t);
11 r%=r/1:s=r-10*r%:printleft$(x$,11-r%)
left$(y$,1+4*s);:ifr=adthenprintr$"[cyan
]";
12 ifr=pthenprintr$"[grn]";
13 printa$(r):return
16 r=as:gosub11:ifps<>asthenr=ps:gosub11
17 r=p:ifr<>psthenps=r:gosub11
18 r=ad:ifr<>asthenas=r:gosub11
```

This BASIC program is now our mini-processor's "operating system." This is backward, of course. The low-level machine language of the C-64 KERNAL and BASIC ROM support the high-level BASIC language that we type in on the keyboard. We are using high-level BASIC to support the low-level instruction set we are using (our ten op codes). This is perfectly appropriate for the C-64, since the closer you go to West Chester (Commodore's headquarters), the less you can learn about how the machine operates. You have to go backwards into the hinterlands to find out the simplest activities of the computer!

Since ROM was invented, bootstrapping has become an historical curiosity. Now it's operating systems and superchips, icons and voice recognition, and the basics with which we're dealing are now

graduate subjects that the technocrats never heard of.

So now we have before us the first perplexing question of computerdom which drove a generation of geniuses crazy just a couple of decades ago: How do you get data into this thing? Specifically, the data that makes it run, the program?

Consider this 9-step program that runs from memory location 3 to memory location 11:

```
03 START INP QUIT ; 811 READ input to 11
04       LDA QUIT ; 111 LOAD acc from 11
05       INP QUIT ; 811 READ input to 11
06       ADD QUIT ; 311 ADD to acc from
11
07       STA QUIT ; 211 STORE acc at 11
08       PRT QUIT ; 911 PRINT contents o
f 11
09       BEQ QUIT ; 611 BRANCH if zero t
o 11
10       JMP START; 503 JUMP to 03
11 QUIT  END      ; 000 END:  shut down
the CPU
```

It accepts two inputs and adds their values together, prints to the screen the result (or the result adjusted to the range of the accumulator!), and repeats the process until a result is equal to zero. Note that the value at location 11 is constantly changing, but the program can't get there unless it is equal to zero. This is called "self-modifying code" and is a scholastic's nightmare, since the initial value written there could be completely spurious and misleading.

But back to our point: how do you get this program into memory?

Obviously we use the instructions 803, 804, 805, 806, 807, 808, 809, 810 and 811. But how do we get *those* instructions into memory? Where do they go?

In the golden, olden days before ROM, when computer manufacturers WANTED people to know how computers worked, back in the ancient age of patch-panels and punch-cards and even before that, programmers toggled switches — one set to tell the computer WHAT to store, another set to tell the computer WHERE to store it, another to tell it TO store it and yet another to tell it to RUN the program once it was in memory. The switches — you guessed it — were either ON or OFF. They were working in BINARY, where "173" is written as "10101101" and "PRINT A$" is a string of ones and zeroes too long to think about. These days we flip the power switch and it says "READY," and bootstrapping is for wizards or pirates or some other silicon priest.

Here's the bootstrap:

```
9 printleft$(x$,-(t=9)):next:a$(0)="801"
:a$(1)="C99":goto14
```

Now the C99 will accept ONE INPUT and store it in location 01, writing right over the identifying "C99" at location 01. Typing "802" will put "802" in location 01, increment the program counter and execute this second instruction. Typing "500" will put "500" in location 02, increment the program counter, and execute this JUMP to 00, where it will execute the "801" instruction again. This is the bootstrap LOOP we use to key in a program.

Type in the following groups of three digits, following each one with **f1** to enter the instruction:

```
802,500;803,811;804,111;805,811;
806,311;807,211;808,911;809,611;
810,503;503.
```

The Goose is now up and running with our "applications" program, which is waiting for the first number to use for additions.

Let's take a look at this process:

```
00 BOOT  INP STRAP; 801 READ input to 01
01 STRAP INP LOOP ; 802 READ input to 02
02 LOOP  JMP BOOT ; 500 JUMP to 00
```

This is an entire program. It accepts a single program instruction, executes it, and jumps back to repeat the process: accepting another, executing it, and looping back. "803" wrote "811," "804" wrote "111," and so on, until "503" transferred control past the "500" instruction to execute the program we keyed in with the 801-8xx-500 bootstrap loop.

Here's a program that saves time keying in longer programs, followed by another program that it loads. The numbers to the right of the semicolon are the numbers you need to key in with the bootstrap loop:

```
03 LOAD  INP START; 803,812
04       LDA LOAD ; 804,103
05       ADD ONE  ; 805,310
06       STA LOAD ; 806,203
07       SUB DONE ; 807,411
08       BMI LOAD ; 808,703
09 CHECK BEQ START; 809,612
10 ONE   #001     ; 810,001 # indicates
a value rather than an instruction
11 DONE  #TEXT+800; 811,832,503 (503 exe
cutes this loading routine)
```

This loader, in turn, loads the following program, which takes 204 characters of text from the keyboard and then prints them to the screen. Only one number now follows the semicolon, since the loader adjusts the target address until it reaches the last address plus one. The value at 20, #SETS, can be reduced for shorter messages:

```
12 START   LDA MODIFY ; 119 modify the l
oader routine
13         STA CHECK  ; 209 replace the
BEQ START in the loader
14         LDA DONE   ; 111
```

```
15          STA STRAP   ; 201 use 01 for s
torage of the start-of-text address
16          ADD COUNT   ; 320
17          STA DONE    ; 211
18          JMP LOAD    ; 503
19 MODIFY   BEQ RESET   ; 621 this will re
place BEQ START at 09
20 COUNT    #SETS       ; 068 sets of thre
e characters (maximum 68)
21 RESET    LDA STRAP   ; 101 recover the
start-of-text address
22          ADD HUNDRED; 330 change to pr
int instruction
23          STA LOAD    ; 203
24          LDA DONE    ; 111
25          ADD HUNDRED; 330
26          STA DONE    ; 211
27          LDA LAST    ; 131
28          STA CHECK   ; 209 now replace
the BEQ RESET
29          JMP LOAD    ; 503 and use the
loader for a third time
30 HUNDRED #100         ; 100
31 LAST     BEQ BOOT    ; 600
32 TEXT     = *         ; * means the curr
ent address is the value, 032 here
```

So now we have an assembly language for the Goose, and a couple of routines to see in action.

Benchmark testing showed that the Goose operates at about 300 hertz (cycles per second), executing a blistering 2.4 instructions per second at top speed — not recommended for arcade games.

Nevertheless, you will discover that as slow as it is, The Goose is too fast for tracking the entire display. So there is a slow-down built into our "operating system." Pressing ANY KEY will stop The Goose after it has updated the screen display, before it executes the instruction displayed in the register line. You can step through program executions and see how each register/memory location is changed.

To increase the Goose's speed to about 6.5 instructions per second, turn off the main memory screen refresh by inserting a "GOTO19" at the start of line 16. The display will remain, but the contents of "memory" will not be updated on the screen.

Now a flock of you sharp-eyed wizards have probably noticed that our BASIC "operating system" is missing a line 21, and that if you have an instruction like "041" the Goose will not shut down but will fall through line 20 and LOAD the accumulator with the contents of memory location 41.

That's because we're going to add a "ROM simulator" so that we can get programs into place more quickly. Instead of keying in the bootstrap loop or the loader routine above, simply add DATA statements at the end of the Goose's BASIC program. "**0xx**" will read xx data strings into Goose locations 01 through xx, reset the program counter and jump to 01 to begin execution of your program. This instruction uses "immediate" addressing: the number of elements to boot immediately follows the op code, rather than being held in a memory location.

Early programmers used paper tape with punched holes to do this with primitive computers . . . some CP/M's, in fact, still expect the "PTP" (paper tape punch/reader) to be connected at power-up!

So here is the auto-boot and a sample program that uses all of the Goose's memory. When you boot the Goose, simply type "099" for the "801" instruction and the sample program will boot and execute.

```
21 forr=1toad:reada$(r):next:gosub11:nex
t:p=0:r=0:return
40 data 999,101,408,201,409,600,501,001,
909,...,ed.,tun,"ay ",.st,t..,gus,"au "
41 data "up "," so",ial,ser," of",ste,"
ta",r a," fo",541,a 1,"in ","se ",goo
42 data "he ",k t,coo,and,"se ",goo,"he
",o t,a t,izz,e p," th",eed,": f",ext
43 data **n,".  ",ide," gu",the,"at ","c
k ",rmi,cco,o m,s t,ent,tem,sta,"ta "
44 data " da"," or",age,ngu," la",bly,se
m," as",end,"  s","se:",goo,the,"or "
45 data s f,ram,rog,r p," fo",ope,vel,"
en",sed,res,add,lf-," se",ped,tam,a s
46 data "nd ",s a,ram,rog,e p,oos,p g,sw
a
```

Ten instructions and 100 memory locations are not going to threaten anyone's market share, not at 300 or even 825 hertz! On the other hand, the earliest computers had smaller memory capacities than the Goose and fewer instructions (one early computer had three!). The job of the programmer is the same in either case: take a few very elementary operations and do as much as you can in small steps. Then imagine what you could do with more instructions, more registers, and more memory.

Lest you suspect that the Goose lacks versatility with its three registers and ten instructions, here is another set of DATA statements you can autoboot with an instruction of "046." It accepts a single numeric input and then finds the integer square root, if there is one. If not, then the Goose will tell you what the next higher integer is. And it uses only half of the Goose's available memory.

```
40 data 850,142,248,150,247,447,249,148,
341,248
41 data 147,448,622,731,247,149,341,249,
448,711
42 data 504,148,441,449,635,704,943,944,
948,500
43 data 149,448,727,504,948,945,948,946,
950,500
44 data 001,000,roo,t <," * "," = "
```

Can anyone work out a multiplication routine for six-digit numbers?

The 6510 has 56 instructions. Stay tuned.

■

MORE COMPUTER MAGIC:

A State of Mind

by John Olsen

The program accompanying this article will perform a magical trick that will bend your mind. When you type the program into your Commodore 64, you will have a feat of mentalism to impress your friends, enemies, and, yes, even strangers!

Your computer will randomly choose ten of the fifty states in our United States and display them on the screen. You are instructed to mentally choose one of them and spell it out loud. The computer will highlight one state at random for each letter you speak. But amazingly, when you finish spelling the state's name, you will find the computer has highlighted the exact state you chose!

Can it be? How is this possible? Could it be that the computer can read your mind? Or have you hidden a sophisticated voice recognition device inside your computer? Can the computer actually hear you spell the name? Are there hidden wires to the computer? Did you use a remote control? Did aliens from the Bermuda Triangle create a time warp around your house? Am I serious? (Did you notice that this entire paragraph was composed of questions? Do you care?)

Actually, this is just another in a continuing series of magic tricks created for your computer to perform. That's right, it's just a trick. It is a feat of mentalism; a moment of magic for the mind that uses the names of our fifty states. And for that reason I have called this trick "A State of Mind".

Now is the time to begin typing the program from the listing into your computer. The rest of this article will discuss the method used to create the mental effect, and examine the programming techniques used to obtain the desired results. You wouldn't want to know how this impossible feat is accomplished, would you?

As with all magic tricks, the strength of this mental effect lies in its secret. So you are bound by the magician's oath of celibacy not to reveal what you are about to learn. Should you choose to break this oath, you will be doomed to a celibate existence for the rest of your life. Boy, these magicians really know how to make an oath stick!

You're still reading? OK, remember, you were warned. The secret is . . .(a little drum roll, please). . . that each state name has a different number of letters in it! Earlier, it was stated that the ten states were chosen at random. So how can we be sure that each of the ten states has a different number of letters in it. Was this a lie? No. The states really are chosen at random each time the trick is performed. Sort of. Let me explain.

There are three states that have four letters: Iowa, Ohio, and Utah. One of them is chosen at random. There are three states that have five letters: Idaho, Maine, and Texas. One of these is also chosen at random. And, of the five states with six letters, one is chosen at random. This technique is continued for the rest of the states, all of which have between four and thirteen letters. The result is that ten states can be chosen, each with a different number of letters. So the states are chosen at random, within the restraints given.

The computer will highlight one of the states each time you say a letter in the name of the state. This is accomplished by holding down the **f7** key as each letter is spoken.

When the **f7** key is pressed the first time, the computer highlights a state. It doesn't matter which one, since no state has only one letter. The second time the **f7** key is pressed, the computer highlights a different state. Again, it doesn't matter which one, since no state has two letters. On the third key press, the computer highlights another state. It still doesn't matter which one, since there is no state with three letters.

Upon the fourth key press, the computer will highlight the state with four letters. This will be "Iowa", "Ohio", or "Utah" depending on which one was originally chosen at random and printed to the screen. If you originally chose a state with a four

letter name, you will find that upon completing the spelling of the state, the computer will be highlighting the state of your choice. Not so amazing once you know the secret, as is true with all magic.

Upon the fifth key press, the computer will highlight the state name with five letters. If you chose this state, the computer will have highlighted it when you finish spelling the name. Upon the sixth key press, the computer highlights the name with six letters. The seventh key press highlights the name with seven letters.

This continues until the last state name is used and the **f7** key has been pressed thirteen times. Regardless of which state was originally chosen, the computer will highlight the chosen name upon completion of the spelling.

Several steps are taken to add misdirection to the trick, so that it will be harder to decipher. The first step is that the state names are chosen at random each time the trick is performed. In this way, the audience has a more difficult task in piercing the secret. The trick is harder to follow after repeated showings. And, at the same time, it appears that the size of the name is irrelevant since different names are used each time. People will spend time wondering if their state will show up this time, instead of using that time trying to figure out the trick.

Another step that helps misdirect the audience is to randomly place the state names on the screen. If this were not done, the trick could be seen through quite easily. For example, imagine that the four letter name appeared first, with the five, six, and seven letter names in order below it. A simple glance at the names in their order would quickly reveal the relative sizes of the names. So, by mixing the order of the names, the secret of the trick is increasingly cloaked in mystery.

All this is woven into a BASIC program for your Commodore 64. A special technique is used for placing the various names on the screen. The row is poked into memory location 781, and the column is poked into location 782. Then a kernal routine is jumped to at location 65520. This moves the cursor to the desired column and row, so that the following print statement appears at the proper screen location. The technique will be found in several sections of this program.

The beginning lines of the program set the screen colors to black. This is so that the ten state names can be printed to the screen in black and remain invisible. Since they are printed in random positions, we don't want them to be seen as they are printed, or it might spark suspicion. In this way, the screen colors can be changed to green after the names are printed, and they will appear in black instantaneously.

In line 20, three arrays are dimensioned. The state names will appear in ascending order in the **S$** array. The random screen positions are held in the X and Y arrays. The **X** array holds the column position, and the **Y** array holds the row position. Line 30 sets the characters into the upper/lower case mode and locks it there. It also clears the screen and sets the character color to black.

Two nested FOR/NEXT loops read in one randomly selected state from each of the ten groups. In line 50 the first FOR/NEXT loop begins by reading the number of names in the current group from data statements and picking one of them randomly. Line 60 reads all the names in the current group, and ignores all of them except the chosen one. This continues until all ten groups have been looped through. Lines 190 through 250 set up the ten screen positions and randomly save them in the **X** and **Y** arrays.

The ten state names are then printed to the screen in lines 270 through 280. Notice the special printing routine is used in line 270. The screen colors are changed so that the printing instantly becomes visible in line 310. The rest of the screen printing is of a different color, so it could not be printed invisibly while the screen was black. It is then printed in lines 320 through 360.

The subroutine at line 640 waits for the RETURN key to be pressed, and then returns to the main program. This subroutine is used twice as the directions for the trick are printed to the screen in lines 370 through 450.

Before the trick can start highlighting the chosen states, three "dummy" names must be chosen. Remember, this is because no state names have one, two, or three letters. Lines 460 through 500 take care of this. Each of the first three times, a different name is highlighted when the **f7** key is pressed. The subroutine between lines 550 and 630 takes care of checking for the **f7** key. Line 570 checks for any key other than **f7**, and starts the program over again if any other key was pressed.

If the **f7** key was pressed, the previously highlighted name is replaced with normal print. The previously highlighted name was saved in the variable **B**.

Line 580 finds the **X** and **Y** position of the previous name and line 590 reprints the name at that position without the highlight. Line 600 resets the previous name, and lines 610 and 620 find the position of the current name and print it in highlighted form. The subroutine then returns to the main program.

After jumping to this subroutine three times, the program enters the final loop. The FOR/NEXT loop at line 510 jumps to this same subroutine ten more times, each time pointing to the state names with the correct number of letters. Remember, at any time the program will restart itself if any key other than the **f7**

key is pressed. The program ends in lines 520 through 540. In case the chosen name was the longest one, the program waits for one last keypress, and then restarts itself.

This concludes another in a series of magic tricks for your computer. When you show it to others, you will have them convinced that the computer can hear their voice. For how else could the computer know which state they are spelling? Next month, I'll be back with another feat of mental magic for your Commodore. Until then, happy conjuring!

```
1 rem * * * * * * * * * * * * * * * * *
2 rem *                               *
3 rem *     (c) 1986 john olsen       *
4 rem *                               *
5 rem * * * * * * * * * * * * * * * * *
10 poke53280,0:poke53281,0
20 dims$(10),x(10),y(10)
30 printchr$(14)chr$(8)"[clr][blk]"tab(1
1)"[17 cmdr-P]"
40 printtab(11)"[dwn][17 cmdr-Y]"
50 forx=1to10:reada:r=int(a*rnd(0))+1
60 fory=1toa:reada$:ify=rthens$(x)=a$
70 nexty,x
80 data3,"Iowa","Ohio","Utah",3,"Idaho",
"Maine","Texas"
90 data5,"Alaska","Hawaii","Kansas","Nev
ada","Oregon"
100 data9,"Alabama","Arizona","Florida",
"Georgia","Indiana","Montana"
110 data"New York","Vermont","Wyoming"
120 data11,"Arkansas","Colorado","Delawa
re","Illinois","Kentucky","Maryland"
130 data"Michigan","Nebraska","Missouri"
,"Oklahoma","Virginia"
140 data6,"Louisiana","Minnesota","New J
ersey","New Mexico","Tennessee"
150 data"Wisconsin",2,"California","Wash
ington"
160 data5,"Connecticut","Mississippi","N
orth Dakota","Rhode Island"
170 data"South Dakota",3,"New Hampshire"
,"Pennsylvania","West Virginia"
180 data3,"Massachusetts","North Carolin
a","South Carolina"
190 a=22:b=3:forx=1to10
200 a=28-a:ifa=6thenb=b+3
210 r=int(10*rnd(0))+1
220 ifx(r)=0thenx(r)=a:y(r)=b:goto250
230 r=r+1:ifr>10thenr=1
240 goto220
250 nextx
260 forx=1to10
270 poke781,y(x):poke782,x(x):sys65520
280 prints$(x):nextx
290 poke781,24:poke782,8:sys65520
300 print"[dk gry]Press [blk]<RETURN>[dk
 gry] to go on.";
310 poke53281,5:poke53280,7
320 poke781,1:poke782,11:sys65520
330 print"[blu][rvs on] A State of Mind
[dwn]"
340 printtab(13)"by John Olsen"
350 poke781,21:poke782,2:sys65520
360 print"[brn]Mentally choose one of th
ese states."
370 gosub640
380 poke781,21:poke782,2:sys65520
390 print"[brn]  You will spell the word
 out loud. "
400 print"[4 spc]Speak loudly, clearly a
nd slowly."
410 gosub640
420 poke781,21:poke782,2:sys65520
430 print"[brn][5 spc]Hold down the [blk
]F7[brn] key as you [shift-space] "
440 print"[7 spc]speak each letter out l
oud.   "
450 print"[dwn][blk][12 spc]Begin when r
eady.   ";
460 b=0:a=4:gosub550
470 poke781,24:poke782,12:sys65520
480 print"[17 spc]";
490 a=8:gosub550
500 a=5:gosub550
510 fora=1to10:gosub550:nexta
520 poke198,0
530 geta$:ifa$=""then530
540 run
550 poke198,0
560 geta$:ifa$=""then560
570 ifa$<>""thenrun
580 poke781,y(b):poke782,x(b):sys65520
590 prints$(b)
600 b=a
610 poke781,y(a):poke782,x(a):sys65520
620 print"[blk][rvs on]"s$(a)
630 return
640 poke198,0
650 geta$:ifa$<>chr$(13)then650
660 return
```

■

FileViewer —

A Programmer's Utility

by Bob Richardson

Whoever first said, "Necessity is the mother of invention," must have owned a computer. Recently, I found it necessary to transfer an 88K documentation file from an Amiga to a C-64. First, due to obvious memory conflicts, I divided the original file into smaller files, each containing but a few chapters of the document. Then, using a straight-across RS-232 cable, I transferred the file from the Amiga to a terminal on my C-64.

Everything went smoothly, except that neither my C-64 terminal nor my C-64 word processor were including carriage returns at the end of each line. Instead, garbage appeared where the carriage returns should have been.

In need of a quick solution (deadline time), I created a utility called FileViewer, which would allow me to examine the transferred files character by character. I was able to deduce rapidly what the foreign return symbols were. I then wrote another utility to convert the files into a proper format. A little further editing was done with my word processor, and in a couple of hours, presto! Project completed.

A short utility program like FileViewer can be extremely useful for all sorts of applications. No longer are the file formats of commercial programs foreign to other programmers. Let's say you want to display a graphics screen in your program. But, alas, you find that the drawing software you are using does not specify how pictures are stored. No problem. Load up FileViewer and examine a blank graphics screen byte-by-byte. It should then be simple to determine the load address and bitmap information from the file.

To use FileViewer, enter a quotation mark, the name of the file you wish to view, a comma followed by the file type, and a closing quotation mark. For example, if you wanted to examine a sequential file called CAD-PIC, you would enter the following line (including the quotation marks):

```
"CAD-PIC,8"
```

If the file name is entered properly, the screen will clear and information about the first byte of the file will be displayed as follows: the top left corner of the screen will show the decimal number representing the first byte; the second line, just below the decimal number, the screen code of the byte will be displayed.

Press any key to view the next character. The number in the top left corner will change for each byte, but each consecutive screen code will be placed next to the previous one, enabling you to see as much of the file as possible.

Hold down on the space bar to "express" through the file. As you progress deeper into the file, the screen will fill with text. Once the screen is full, the FileViewer program will clear the monitor screen and continue through the file, again listing information in the top left corner of the screen.

When the end of the file has been reached, the words `END OF FILE` will be displayed on the top line. If you wish to quit at any time while reading a file, press **f7** and the program will exit after properly closing the file.

Following is a brief description of each program line:

Line	Function
5	Sets display to upper/lowercase mode and disables the SHIFT-CMDR control combination
10	Clears screen and sets colors; this is a special clear screen method that allows screen memory POKEs to be visible on all versions of the C-64 ROM

11 Inputs filename into the variable f$

12 Opens disk file f$ as input (the ",r" tells the disk drive that you want to read the file — even if it is a program file)

13 Clears screen again and sets the variable **x** to point to two lines below the upper left corner in screen memory

14 Gets a character from the disk drive and displays its ASCII value in the left corner while displaying the screen code at the location pointed to by **x**. **X** is then up-dated to the next screen location

15 Checks BASIC's status variable for the end of file condition. If true, then it indicates end of file on first line of screen

16 Waits for user keypress

17 If keypress was **f7** then close file, clear screen, and exit to BASIC

18 If end of screen has been reached then clear screen and re-set **x** to two lines below upper left corner

19 Go back and read next character

FileViewer is the first in a series of utilities designed to be stored in whhat I call a Programmer's Toolbox. Next month's utility, aimed at programmers who occasionally type in programs from magazines, will "proofread" programs you type in from *The Guide*. Until then, farewell, and may all your programs be free of insects.

```
5 printchr$(8);chr$(14);
10 poke53280,6:poke53281,1:printchr$(5);
chr$(147);:poke53281,6
11 print"enter filename (add ,p or ,s) i
n quotes":inputf$
12 open3,8,3,f$+",r"
13 printchr$(147);"[12 spc]f7 to end":x=
1104
14 get#3,a$:a=asc(a$+chr$(0)):printchr$(
19);"[4 spc]";chr$(19);a:pokex,a:x=x+1
15 if(statusand64)thenprintchr$(19);tab(
25);"end of file"
16 getb$:ifb$=""then16
17 ifb$=chr$(136)thenclose3:printchr$(14
7);:end
18 ifx>2023then13
19 goto14
```

■

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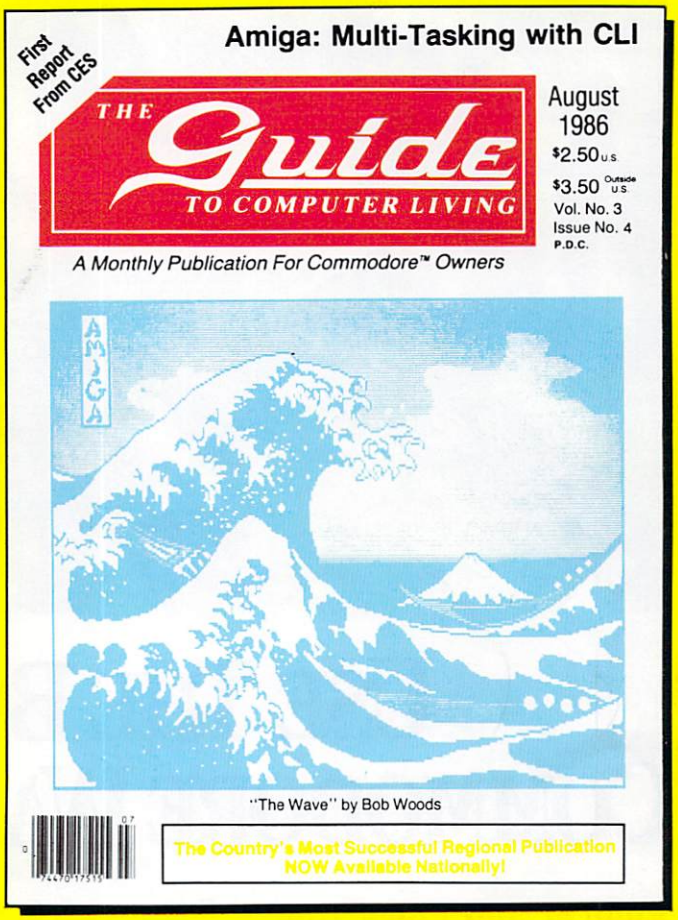

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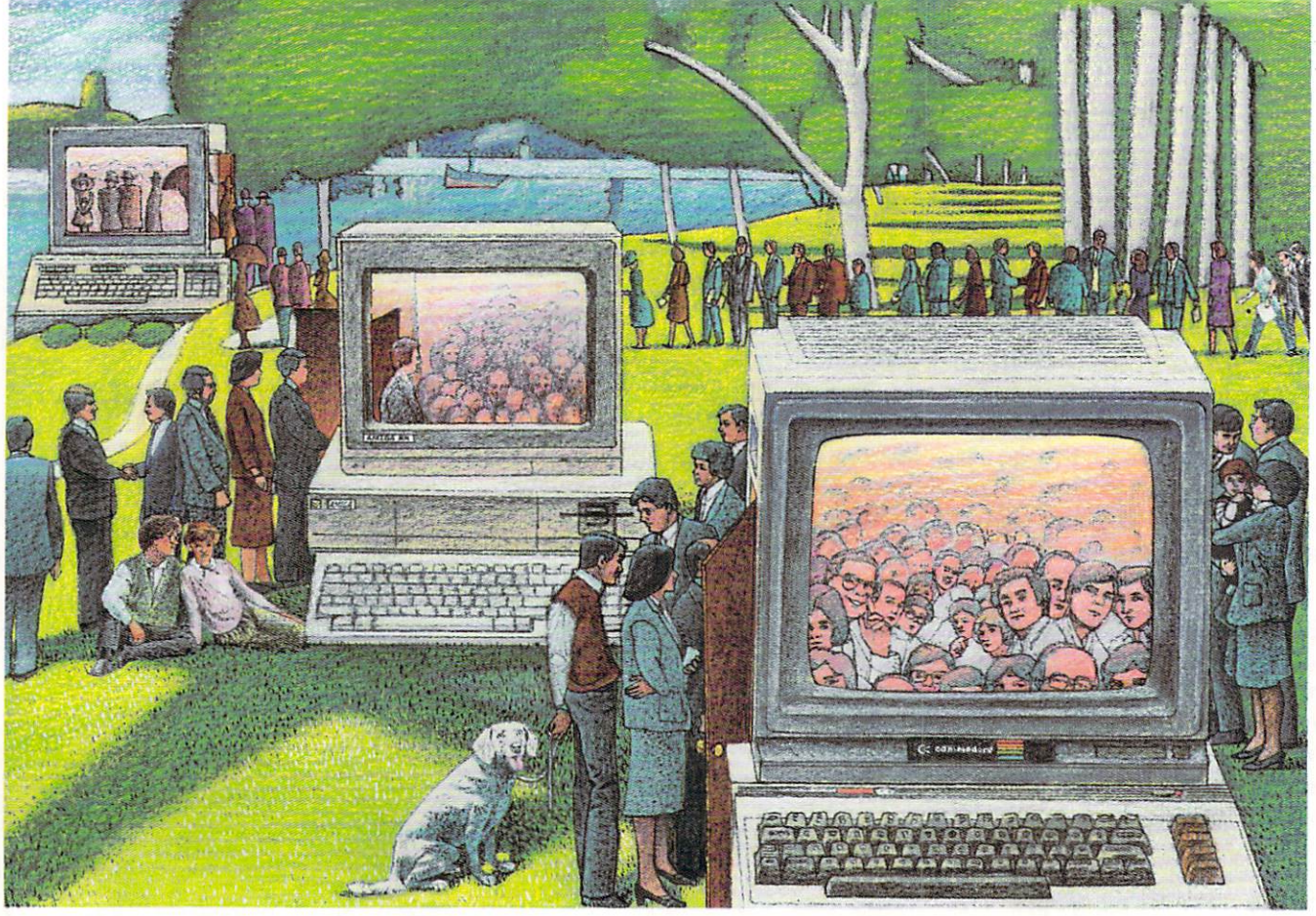

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